LOEWE.

Kundendienst-Serviceanleitung

VHS

PAL SECAM

VHS
OC 3600 H
Videorecorder
Art.-Nr.53526

VHS
OC 3600 H/SAT
Videorecorder
Art.-Nr.53527

Sicherheitsvorschriften

Bei Reparaturarbeiten an den Geräten sind die Sicherheitsbestimmungen gemäß VDE 0860 und Nachträgen zu beachten und einzuhalten.

Spezielle Bauteile in den Geräten dürfen aufgrund ihres Aufbaues nur durch Originalteile ersetzt werden. Außerdem sind die am Reparaturort gültigen Schutzbestimmungen der Bundesgenossenschaft beim Umgang mit diesen Geräten einzuhalten. Hierzu gehört auch die Beschaffenheit des Arbeitsplatzes.

Die Kenntnis dieser Vorschriften ist die Voraussetzung, um einen fachgemäßen Service der Geräte durchführen zu können.

Bei Betrieb dieser Geräte im Ausland sind die jeweiligen Schutzbestimmungen des Landes zu berücksichtigen und einzuhalten.

SAFETY PRECAUTIONS

The following precautions should be observed when servicing.

1. Since many parts in the unit have special safety-related characteristics, always use genuine LOEWE replacement parts.
   Especially critical parts in the power circuit block should not be replaced with other makes.
2. Before returning a repaired unit to the customer, the service technican must thoroughly test the unit to ascertain that it is completely safe to operate without danger of electrical shock.

Norme die sicurezza

Effettuando dei lavori di riparazione sugli apparecchi bisogna osservare e rispettare le disposizioni di sicurezza a norma VDE 0860 e appendici.

Componenti speciali negli apparecchi vanno sostituiti, causa la loro composizione, solo con ricambi originali. Vanno inoltre rispettate le disposizioni di sicurezza dell'ente di assicurazione contro gli infortuni sul lavoro in vigore nel luogo di riparazione. Ciò vale anche per le condizioni del posto di lavoro. La cognizione di tali norme costituisce la premessa per poter effettuare un'assistenza tecnica a regola d'arte.

Impiegando gli apparecchi all'estero occorre rispettare ed attenersi alle norme di sicurezza del rispettivo paese.

Loewe Opta GmbH.
96305 Kronach · Postf. 15 54.
96317 Kronach · Industriestraße 11.
Telefon (0 92 61) 9 90 · Telex 642 620.
Telefax 0 92 61/9 94 13.
Telegramm loewevideo.
Bildschirmtext *50705 # (Info).
*50705990 # (ET-Best.).

230-90275.978

TABLE OF CONTENTS

SECTION 1 SUMMARY

KEY TO ABBREVIATIONS 1-1
IMPORTANT SAFETY PRECAUTIONS 1-2
- Precautions during Servicing
SAFETY CHECK AFTER SERVICING 1-3
- Insulation resistance test
- Dielectric strength test
- Clearance distance
- Leakage current test
INTRODUCTION 1-4
FEATURES 1-4
SPECIFICATIONS 1-4
LOCATION OF CUSTOMER CONTROLS 1-5

SECTION 2 CABINET & MAIN FRAME

SERVICE FIXTURE CONNECTING METHOD 2-1
1. SVC FIXTURE Connecting Method 2-1
2. Electrical Service Fixture List 2-2
CABINET DISASSEMBLY 2-3
1. Top Case, Bottom Cover 2-3
2. Front Panel 2-3
CIRCUIT BOARD DISASSEMBLY 2-3
1. Circuit Board Arrangement 2-3
2. Main Circuit Board (1) (Audio, Tuner/IF, Syscon, Servo) 2-4
3. Y/C Circuit Board (Y/C, F-OSD) 2-4
4. Timer/Key Function Circuit Board 2-4
5. Pre-Amp Circuit Board 2-4
6. Power Circuit Board 2-5
7. BS Circuit Board 2-5
EXPLODED VIEWS 2-5
1. Cabinet & Main Frame Section 2-5
2. Packing Accessory Section 2-7
3. Remote Control Section 2-7

SECTION 3 ELECTRICAL

ELECTRICAL ADJUSTMENT PROCEDURES 3-1
Electronic Test Equipment Requirement 3-1
1. Servo Circuit 3-1
2. Y/C Circuit 3-1
3. Audio Circuit 3-3
4. Hi-Fi Circuit 3-3
5. Tuner/IF Circuit 3-3
BLOCK DIAGRAMS 3-5
1. Power (SMPS) Block Diagram 3-5
2. Servo, System Control & Timer Block Diagram 3-6
3. Y/C Block Diagram 3-8
4. Audio Block Diagram 3-10
5. Tuner/IF Block Diagram 3-12
6. Pre-Amp Block Diagram 3-14
7. Function OSD & Title Block Diagram 3-16
8. SECAM Block Diagram 3-18
9. BS Block Diagram 3-20
CIRCUIT DIAGRAMS 3-22
1. Power (SMPS) Circuit Diagram 3-22
2. Servo Circuit Diagram 3-26
3. Y/C Circuit Diagram 3-30
4. Audio Circuit Diagram 3-32
5. System Control Circuit Diagram 3-36
6. Timer Circuit Diagram 3-38
7. Tuner/IF Circuit Diagram 3-42
8. Premiere Circuit Diagram 3-44
9. Pre-Amp Circuit Diagram 3-48
10. Function OSD & Title Circuit Diagram 3-50
11. SECAM Circuit Diagram 3-54
12. BS Circuit Diagram 3-58
13. Connection Diagram 3-60
DECK JUNCTION 3-62
1. Deck Junction Circuit Diagram 3-62
2. Deck Junction P.C.Board 3-62
PRINTED CIRCUIT BOARD DIAGRAMS 3-64
1. Main 1 P.C.Board 3-64
2. Y/C P.C.Board 3-66
3. Function OSD P.C.Board 3-67
4. Power P.C.Board 3-68
5. Pre-Amp P.C.Board 3-69
6. Timer P.C.Board 3-68
7. Key Function P.C.Board 3-69
8. IF P.C.Board 3-70
9. Junction P.C.Board 3-71
10. SCART P.C.Board 3-70
11. BS P.C.Board 3-72

SECTION 4 MECHANISM

NOTE) This section is provided separately. When checking the mechanical problems, refer to the manual (Part No. 494-004Y) provided separately.

SECTION 1 SUMMARY
KEY TO ABBREVIATIONS

A	AC	Alternating Current
	ACC	Automatic Color Control
	ADJ	Adjust
	A/E	Audio Erase
	AFC	Automatic Frequency Control
	AFT	Automatic Fine Tuning
	AGC	Automatic Gain Control
	ALC	Automatic Level Control
	AM	Amplitude Modulation
	AMP	Amplifier
	ANT	Antenna
	APC	Automatic Phase Control
	ASS'Y	Assembly
	AUD	Audio
	AUTO	Automatic
	AUX	Auxiliary
B	B	Base
	BPF	Bandpass Filter
	BW or B/W	Black and White
C	C	Capacitor, Chroma, Collector
	CAN	Cancel
	CAP	Capstan
	CATV	Cable Television
	CBA	Circuit Board Assembly
	CCD	Charge Coupled Device
	CFG	Capstan Frequency Generator
	CH	Channel
	CHROMA	Chrominance
	CLK	Clock
	CNR	Chroma Noise Reduction
	COMB	Combination Comb Filter
	COMP	Comparator Composite Compensation
	CONV	Converter
	CS	Chip Select
	CST	Cassette
	CTL	Control
	CUR	Current
	CYL	Cylinder
D	D	Drum, Digital, Diode, Drain
	dB	Decibel
	DC	Direct Current
	DEMOD	Demodulator
	DET	Detector
	DEV	Deviation
	DHP	Double High Pass
	DIGITRON	Digital Display Tube
	DL	Delay Line
	DOC	Drop Out Compensator
	D/V	Dummy Vertical
E	E	Emitter
	EE	Electric to Electric
	EMP	Emphasis
	EP	Extended Play
	EQ	Equalizer
	ES	Electrostatically Sensitive
F	F	Fuse
	FB	Feed Back
	FBC	Feed Back Clamp
	FE	Full Erase
	FF	Fast Forward
	FG	Frequency Generator
	FL	Filter
	FM	Frequency Modulation
	F/R	Front/Rear
	FS	Frequency Synthesizer
	FSC	Subcarrier Frequency
	F/V	Frequency Voltage
	FWD	Forward
G	GEN	Generator
	GND	Ground
H	H	High, Horizontal
	Hz	Hertz
I	IC	Intergrated Circuit
	IF	Intermediate Frequency
	INS	Insert
	I/O	Input/Output
L	L	Low, Left, Coil
	LD	LED
	LECHA	Letter Character
	LP	Long Play
	LPF	Low Pass Filter
M	MAX	Maximum
	MD	Modulator
	MIC	Microphone
	MIN	Minimum
	MIX	Mixer, Mixing
	M.M.	Mono Multi Vibrator
	MMV	Monostable Multivibrator
	MOD	Modulation, Modulator
	MODEM	Modulator-Demodulator
N	NR	Noise Reduction
O	OSC	Oscillator
	OSD	On Screen Display
P	PB	Playback
	PCB	Printed Circuit Board
	PG	Pulse Generator
	PLL	Phase Locked Loop
	P-P	Peak-to-Peak
	PRE-AMP	Preamplifier
	PS	Phase Shift
	PWM	Pulse Width Modulation
Q	Q	Transistor
	QH	Quasi Horizontal
	QSR	Quick Setting Record
	QTR	Quick Timer Record
	QV	Quasi Vertical
R	R	Resistor, Right
	RE(or RC)	Remocon, Receiver
	REC	Recording
	REF	Reference
	REG	Regulated, Regulator
	REMOCON	Remote Control(unit)
	REV	Reverse
	REW	Rewind
	RF	Radio Frequency
	R/P	Record/Playback
	RTC	Real Time Counter
S	S	Serial
	SH	Shift
	SHARP	Sharpness
	SIF	Sound Intermediate Frequency
	SLD	Side Locking
	S/N	Signal to Noise Ratio
	SP	Standard Play
	SUB	Subtract, Subcarrier
	SW or S/W	Switch
	SYNC	Synchronization
	SYSCON	System Control
T	T	Coil
	TP	Test Point
	TR	Transistor
	TRK	Tracking
	TRANS	Transformer
	TU	Tuner, Take-Up
U	UHF	Ultra High Frequency
	UNREG	Unregulated
V	V	Volt, Vertical
	VA	Always Voltage
	VCO	Voltage Controlled Oscillator
	VGC	Voltage Gain Control
	VHF	Very High Frequency
	VISS	VHS Index Search
	VR	Variable Resistor or Volume
	V-Sync	Vertical Synchronization
	VTG	Voltage
	VV	Voltage to Voltage
	VXO	Voltage X-tal Oscillator
W	W	Watt
	WHT	White
	W/O	With Out
X	X-TAL	Crystal
Y	Y/C	Luminance/Chrominance
	YNR	Luminance Noise Reduction
Z	ZD	Zener Diode

IMPORTANT SAFETY PRECAUTIONS

Prior to shipment from the factory, the products are strictly inspected to conform with the recognized product safety and electrical codes of the countries in which they are to be sold. However, in order to maintain such compliance, it is equally important to implement the following precautions when a set is being serviced.

• Precautions during Servicing

1. Locations requiring special caution are denoted by labels and inscriptions on the cabinet, chassis and certain parts of the product. When performing service, be sure to read and comply with these and other cautionary notices appearing in the operation and service manuals.

2. Parts identified by the ⚠ symbol and shaded (■) parts are critical for safety.
   Replace only with specified part numbers.
   Note: Parts in this category also include those specified to comply with X-ray emission standards for products using cathode ray tubes and those specified for compliance with various regulations regarding spurious radiation emission.

3. Use Specified internal wiring. Note especially:
   1) Wires covered with PVC tubing
   2) Double insulated wires
   3) High voltage leads

4. Use specified insulating materials for hazardous live parts. Note especially:
   1) Insulation Tape
   2) PVC tubing
   3) Spacers
   4) Insulation sheets for transistor

5. When replacing AC primary side components (transformers, power cords, noise blocking capacitors, etc.) wrap ends of wires securely about the terminals before soldering.(Fig. 1)

6. Observe that wires do not contact heat producing parts (heatsinks, oxide metal film resistors, fusible resistors, etc.)

7. Check that replaced wires do not contact sharp edged or pointed parts.

8. When a power cord has been replaced, check that 10-15Kg of force in any direction will not loosen it.(Fig. 2)

9. Also check areas surrounding repaired locations.

10. Products using cathode ray tubes (CRTs)
    In regard to such products, the cathode ray tubes themselves, the high voltage circuits, and related circuits are specified for compliance with recognized codes pertaining to X-ray emission. Consequently, when servicing these products, replace the cathode ray tubes and other parts with only the parts specified. Under no circumstances attempt to modify these circuits. Unauthorized modification can increase the high voltage value and cause X-ray emission from the cathode ray tube.

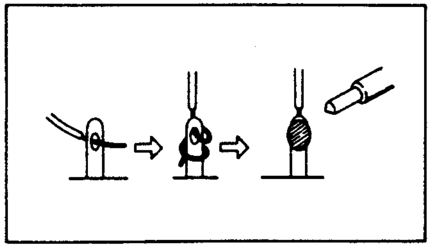


Fig. 1

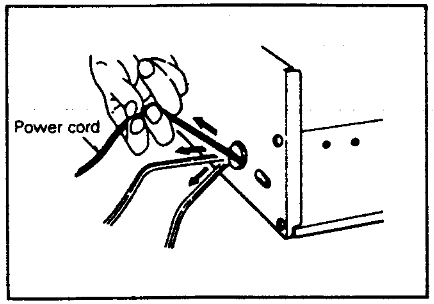


Fig. 2

SAFETY CHECK AFTER SERVICING

Examine the area surrounding the repaired location for damage or deterioration. Observe that screws, parts and wires have been returned to original positions. Afterwards, perform the following tests and confirm the specified values in order to verify compliance with safety standards.

• Insulation resistance test

Confirm the specified insulation resistance or greater between power cord plug prongs and externally exposed parts of the set (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.). See table below.

• Dielectric strength test

Confirm specified dielectric strength or greater between power cord plug prongs and exposed accessible parts of the set(RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.). See table below.

• Clearance distance

When replacing primary circuit components, confirm specified clearance distance (d), (d') between soldered terminals, and between terminals and surrounding metallic parts. See table below.

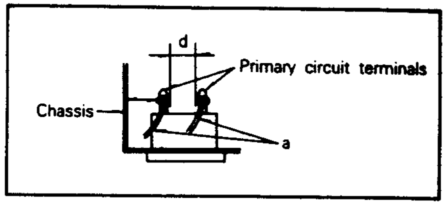


Fig. 3

Table 1:Ratings for selected areas

AC Line Voltage	Region	Insulation Resistance	Dielectric Strength	Clearance Distance(d),(d)
•110 to 130 V 200 to 240 V	Europe Australia	≧10 MΩ/500 V DC	4kV 1 minute	≧6mm(d) ≧8mm(d) (a Power cord)

•Class II model only.

Note. This table is unofficial and for reference only. Be sure to confirm the precise values for your particular country and locality.

• Leakage Current test

Confirm specified or lower leakage current between B(earth ground, power cord plug prongs) and externally exposed accessible parts (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.)

Measuring Method: (Power ON)
Insert load Z between B(earth ground, power cord plug prongs) and exposed accessible parts. Use an AC voltmeter to measure across both terminals of load Z. See figure and following table.

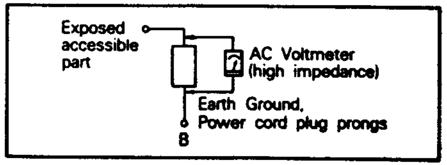

Exposed accessible part
Z
AC Voltmeter (high impedance)
Earth Ground, Power cord plug prongs
B

Fig. 4

Table 2:Leakage current ratings for selected areas

AC Line Voltage	Region	Load Z	Leakage Current(i)	Earth Ground (B) to:
100 to 130 V	Europe	2kΩ	i≦0.7m A peak i≦2m A dc	Antenna earth terminals
200 to 240 V	Australia	50kΩ	i≦0.7m A peak i≦2m A dc	Other terminals

Note. This table is unofficial and for reference only. Be sure to confirm the precise values for your particular country and locality.

INTRODUCTION

This service manual provides a variety of service information. It contains the mechanical structure of the Video Cassette Recorder (VCR) together with mechanical adjustments and the electronic circuits in schematic form.

This VCR was manufactured and assembled under our strict quality control standards and meets or exceeds industry specifications and standards.

FEATURES

- Double Azimuth 4-head system
- HQ, High Quality picture enhancement system improves image sharpness and detail
- 8 event/1 year programmable timer with everyday recording
- Programmable channel memory with frequency synthesized tuner (up to 99 positions)
- Full function infrared remote control
- Digital Link System
- TV Programmer
- QSR, Quick Set Recording with standby (up to 9 hours)
- Hi-Fi Audio System
- Simulcast Recording Function
- Hi-Fi Audio Level Meter
- Audio Dubbing Function
- Auto Power and Play Function
- Automatic Rewind
- Jet Search, Logic Search Function
- Tape Remaining time Display Function
- Fine Still, Frame Advance, Variable Slow Function
- VISS (VHS Index Search System) Function
- LP Recording and Playback Function
- Auto Head Cleaner
- Quick Start Function
- Real Time Counter
- Logic Auto Tracking System
- Digital Auto Tracking System
- Child Lock Function
- Centre Mechanism
- ACSS (Automatic Clock Setting System) Function
- VACP Plus (Video Automatic Channel Programme) Function
- VPS (Video Programming System)
- Built in ShowView Programming
- Premiere Compatible
- BS Tuner (only for OC 3600 H/SAT)

* ShowView is a trademark applied for by Gemstar Development Corp.
ShowView system is manufactured under license from Gemstar Development Corporation.

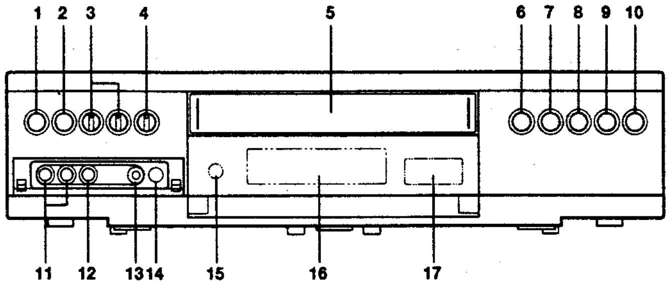
SPECIFICATIONS

General	
Power Source :	AC 230V±10%, 50Hz
Power Consumption :	Approx. 43 Watts (OC 3600 H/SAT)/29 Watts (OC 3600 H)
Video Recording System :	Double Azimuth 4 heads helical scanning system
Tape Speed :	23.39mm/sec (SP mode), 11.69mm/sec (LP mode)
Tape Format :	Tape Width 1/2" (12.7mm high density tape VHS).
Maximum Recording Time :	4hours at SP mode/8hours at LP mode (with E-240 cassette)
FF/Rewind Time :	Less than 300secs (with E-180 cassette)
Dimensions (W×H×D) :	16.9"×3.9"×14.1" (430×100×357mm)
Weight :	About 13.5 lbs (6.1kg)
Operating Temperature :	41°F-95°F (5°C-35°C)
Operating Humidity :	35%~80%
Timer :	24hours display type
Video	
Television System :	CCIR standard (625 lines, 50 fields) PAL/SECAM Colour signal
Recording Format :	PAL/MESECAM
RF Reception :	PAL B/G, SECAM B/G, SECAM L
RF OUT :	PAL G, SECAM G
Input Level :	VIDEO IN (SCART, PHONO type) 1.0Vp-p, 75ohm, unbalanced
Output Level :	VIDEO OUT (SCART, PHONO type) 1.0Vp-p, 75ohm, unbalanced
Signal to Noise Ratio :	More than 43dB
RF Modulator :	UHF Channels 32-40 (Adjustable)
Audio	
Input Level :	AUDIO IN 0dBm More than 50Kohm (SCART, PHONO type : FRONT) -8dBm More than 50Kohm (PHONO type : REAR)
Output Level :	AUDIO OUT 0dBm Less than 1Kohm (SCART type) -4dBm Less than 10Kohm (PHONO type)
Audio Track :	Mono + Hi-Fi track type
Audio Frequency Response :	Normal : 100Hz~10KHz ($^{+3}_{-6}$ dB), Hi-Fi : 20Hz~20KHz (±3dB)
Signal to Noise Ratio :	Hi-Fi Audio : More than 68dB (JIS A Filter)
Dynamic Range :	Hi-Fi Audio : More than 75dB (JIS A Filter)

* Designs and specifications are subject to change without notice.

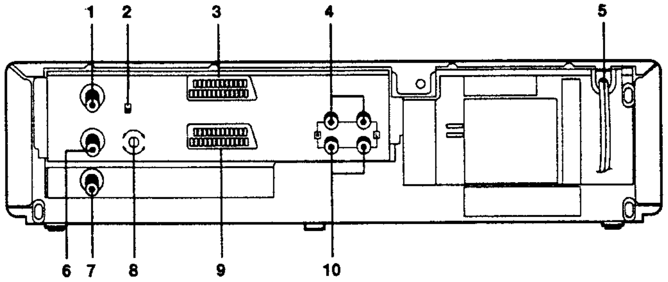
LOCATION OF CUSTOMER CONTROLS

FRONT



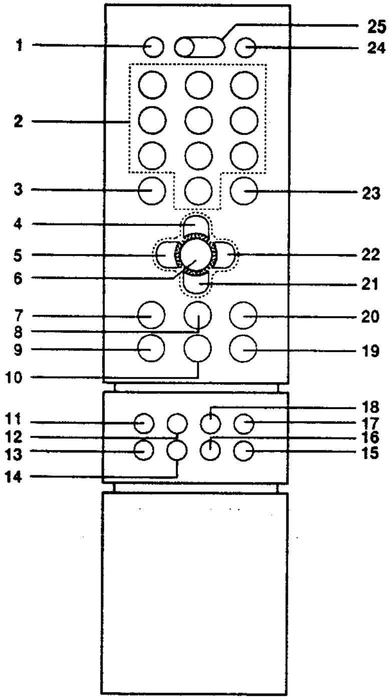
1. POWER BUTTON
2. STOP/CASS BUTTON
3. AUDIO LEVEL SETTING (L-LEVEL-R)
4. HEADPHONE VOLUME
5. CASSETTE COMPARTMENT
6. STILL IMAGE/PAUSE BUTTON
7. RECORD BUTTON
8. REWIND/REVIEW BUTTON
9. PLAY BUTTON
10. FAST FORWARD/CUE BUTTON
11. AUDIO INPUTS
12. VIDEO INPUTS
13. PAUSE SOCKET (SYNC)
14. HEADPHONE SOCKET
15. REMOTE SENSOR WINDOW
16. MULTI-FUNCTION DISPLAY
17. AUDIO LEVEL METER

REAR



1. AERIAL INPUT
2. COLOUR SYSTEM SELECT SWITCH (PAL/SECAM)
3. EURO-AV1 SOCKET
4. SIMULCAST AUDIO INPUT (L/R)
5. MAINS LEAD
6. RF OUTPUT
7. LNC IN SOCKET (only for OC 3600 H/SAT)
8. RF CHANNEL CONTROL
9. EURO-AV2 SOCKET
10. AUDIO OUTPUT SOCKETS (L/R)

REMOTE CONTROL


1
2
3
4
5
6
7
8
9
10
11
12
13
14
25
24
23
22
21
20
19
18
17
16
15

1. SHOWVIEW BUTTON
2. NUMBER BUTTONS "0" THROUGH "9"
3. INPUT SELECT BUTTON
4. PROGRAMME UP, SELECT ∧ BUTTON
5. SELECT 〈 BUTTON
6. OK BUTTON
7. PAUSE/STILL BUTTON
8. RECORD/QSR BUTTON
9. REWIND/REVIEW BUTTON
10. PLAY (×2) BUTTON
11. AUTO TRACKING BUTTON
12. TV/VTR SELECT BUTTON
13. VISS BUTTON
14. MARK BUTTON
15. TAPE COUNTER RESET BUTTON (0000)
16. ERASE BUTTON
17. TAPE COUNTER RESET BUTTON (REST)
18. TAPE SPEED SELECT BUTTON
19. FAST FORWARD/CUE BUTTON
20. STOP BUTTON
21. PROGRAMME DOWN, SELECT ∨ BUTTON
22. SELECT 〉 BUTTON
23. MENU BUTTON
24. POWER BUTTON
25. VIDEO/TV CONTROL BUTTON

SECTION 2 CABINET & MAIN FRAME

SERVICE FIXTURE CONNECTING METHOD

1. SVC FIXTURE Connecting Method

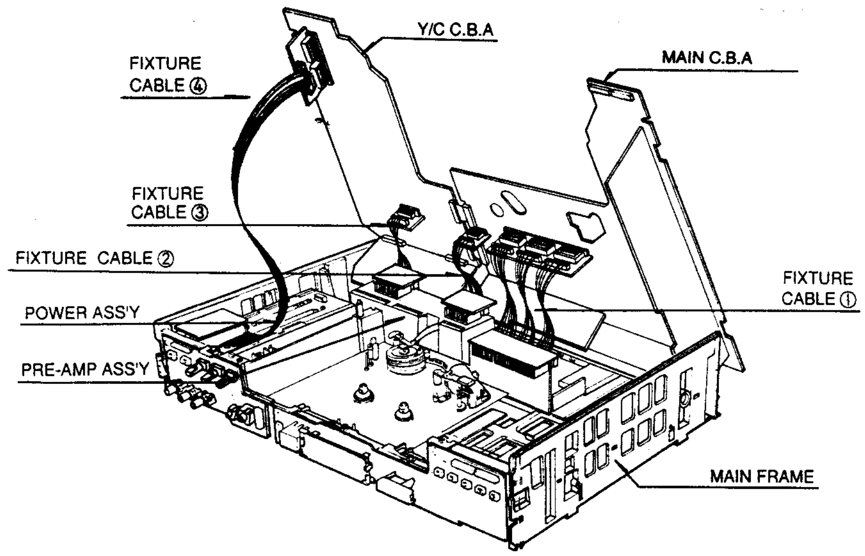

Y/C C.B.A
FIXTURE
CABLE ④
MAIN C.B.A
FIXTURE
CABLE ③
FIXTURE CABLE ②
FIXTURE
CABLE ①
POWER ASS'Y
PRE-AMP ASS'Y
MAIN FRAME

Fig. 2-a

a) Connect the FIXTURE Cable ① between Main C.B.A and Junction C.B.A. (P2D15. P2D14, P2D13)
b) Connect Y/C C.B.A and Main C.B.A to Pre-Amp Ass'y with the FIXTURE Cable ②, ③ (P3809=P8302, P4816=P8403).
c) Connect the FIXTURE Cable ④ between Y/C C.B.A and Power Ass'y. (P3102=PP302, P3103=PP301)

1-1. FIXTURE Cable ① Connecting Method (See Fig. 2-a, 2-b)

a) Connect the connector of "MAIN" mark of FIXTURE Cable ① with the Main C.B.A and the connector of "JUNCTION" mark with the Junction C.B.A.
b) At this time, should be in the left side " ◀ LEFT" mark on the P.C.B of the FIXTURE Cable ①.

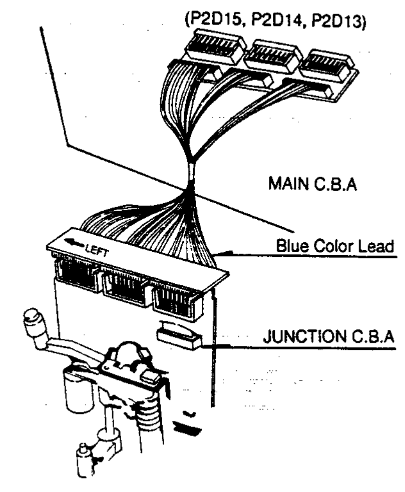

(P2D15, P2D14, P2D13)
MAIN C.B.A
LEFT
Blue Color Lead
JUNCTION C.B.A

Fig. 2-b

1-2. FIXTURE Cable ②, ③ Connecting Method (See Fig. 2-a, 2-c)

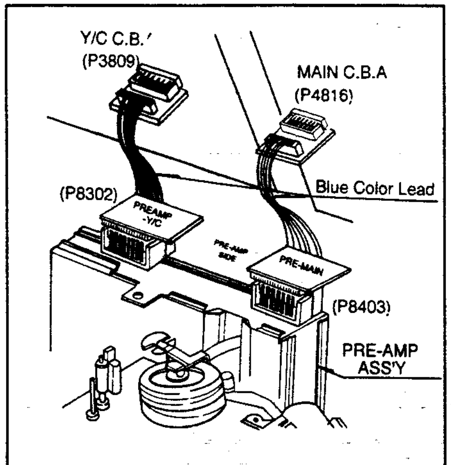

Y/C C.B.'
(P3809)
MAIN C.B.A
(P4816)
(P8302)
Blue Color Lead
PREAMP -Y/C
PRE-AMP SIDE
PRE-MAIN
(P8403)
PRE-AMP ASS'Y

Fig. 2-c

a) Connect the FIXTURE Cable ②, ③ with "PREAMP-Y/C" and "PRE-MAIN" marked on the PCB are placed in a right position to Pre-Amp Ass'y.
b) Connect the FIXTURE Cable ③ with "Y/C-PREAMP" marked on the PCB is placed on the left side to Y/C C.B.A.
c) Connect the FIXTURE Cable ② with "MAIN-PRE" marked on the PCB is placed on the right side to Main C.B.A.

1-3. FIXTURE Cable ④ Connecting Method (See Fig. 2-a, 2-d)

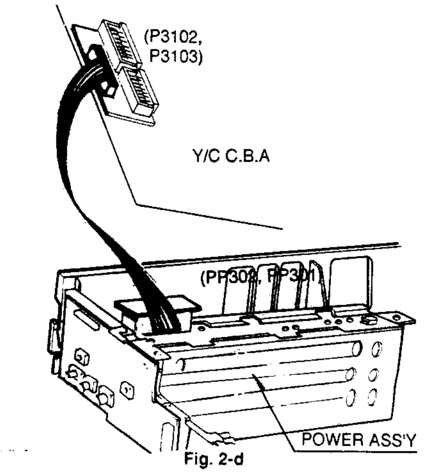

(P3102,
P3103)
Y/C C.B.A
(PP302, PP301)
POWER ASS'Y

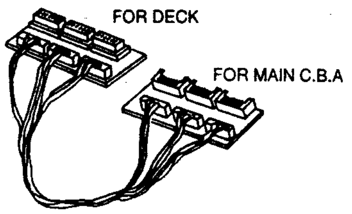
Fig. 2-d

a) Connect the connector of "Y/C-POWER" mark of FIXTURE Cable ④ with Y/C C.B.A and the connector of "POWER-Y/C" mark with the Power Ass'y.

2. Electrical Service Fixture List

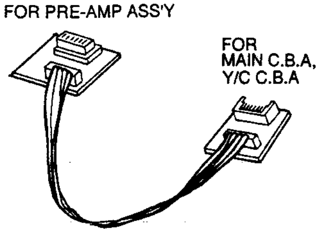
A. Fixture Cable ①. (FIX 1)

Parts No.: 232-972A (Optional Parts)


FOR DECK
FOR MAIN C.B.A

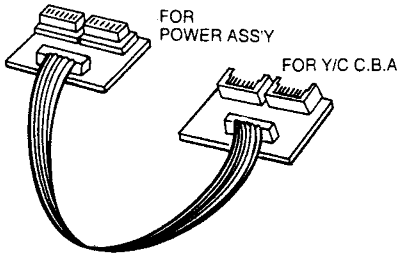
B. Fixture Cable ②, ③. (FIX 2, FIX 3)

Parts No.: 6871R-0233A (FIX 2) (Optional Parts)
6871R-0233B (FIX 3)


FOR PRE-AMP ASS'Y
FOR
MAIN C.B.A,
Y/C C.B.A

C. Fixture Cable ④. (FIX 4)

Parts No.: 6871R-0233C (Optional Parts)


FOR
POWER ASS'Y
FOR Y/C C.B.A

CABINET DISASSEMBLY

1. Top Case, Bottom Cover

A. Release 5 screws (A). (See Fig. 2-1)
B. Hold the back of Top Case and lift it up slightly backward to remove it.
C. Release 8 screws (B). (See Fig. 2-1)
D. Remove the Bottom Cover.

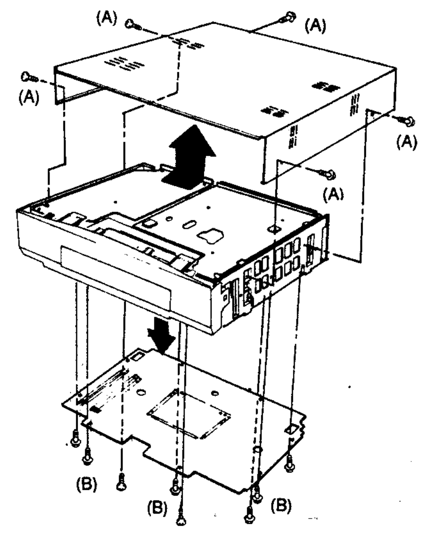


Fig. 2-1

* Caution

When reassemble the Front Panel, assemble it in condition of inserting the Door Cassette inside, as shown in Fig. 2-3.

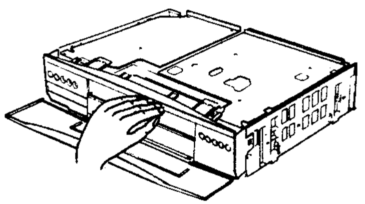


Fig. 2-3

2. Front Panel

A. Remove the Top Case. (See Fig. 2-1)
B. Remove the Bottom Cover. (See Fig. 2-1)
C. Remove the stoppers on the top of Front Panel.
D. Remove the stoppers on the bottom of Front Panel.

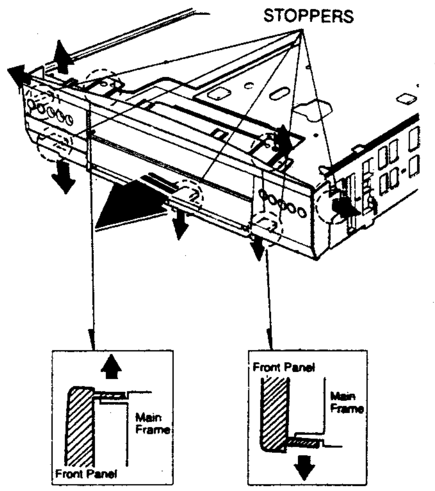

STOPPERS
Main Frame
Front Panel
Front Panel
Main Frame

Fig. 2-2

CIRCUIT BOARD DISASSEMBLY

1. Circuit Board Arrangement

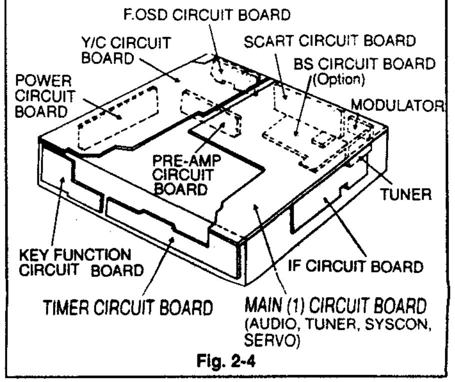

F.OSD CIRCUIT BOARD
Y/C CIRCUIT BOARD
SCART CIRCUIT BOARD
BS CIRCUIT BOARD (Option)
POWER CIRCUIT BOARD
MODULATOR
PRE-AMP CIRCUIT BOARD
TUNER
KEY FUNCTION CIRCUIT BOARD
IF CIRCUIT BOARD
TIMER CIRCUIT BOARD
MAIN (1) CIRCUIT BOARD
(AUDIO, TUNER, SYSCON, SERVO)

Fig. 2-4

2. Main Circuit Board (1) (Audio, Tuner/IF, Syscon, Servo)

A. Release 4 screws (D). (See Fig. 2-5)

B. Disconnect the connector between Main Circuit Board and Timer Circuit Board.

C. Lift the rear part up and pull the P.C.Board backward.

D. Remove the connector for complete removal.

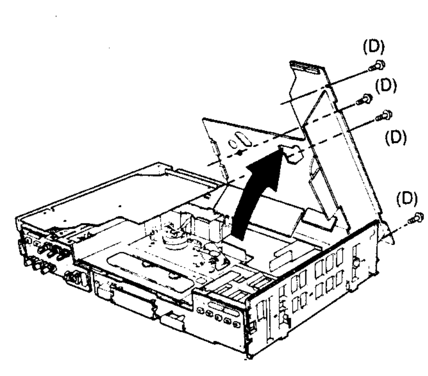


Fig. 2-5

3. Y/C Circuit Board (Y/C, F-OSD)

A. Release 4 screws (E). (See Fig. 2-6)

B. Disconnect the connector between Main Circuit Board and Timer Circuit Board.

C. Disconnect the connector between Main Circuit Board and Power Circuit Board.

D. Lift the rear part up and pull the P.C.Board backward.

E. Remove the connector for complete removal.

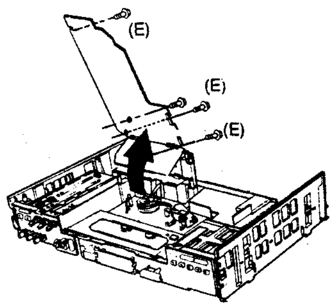


Fig. 2-6

4. Timer/Key Function Circuit Board

A. *Pull the P.C.Board toward you while pressing 9 stopper* in the direction of the arrows to disengage, and remov the P.C.Board. (See Fig. 2-7)

B. Remove the connector for complete removal.

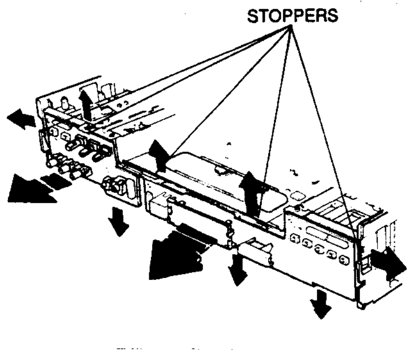


Fig. 2-7

5. Pre-Amp Circuit Board

A. Release 2 screws (F). (See Fig. 2-8)

B. Remove Pre-Amp Package from Main Frame in th direction of arrow (1).

C. Remove bracket Pre-Amp from Pre-Amp Package.

D. Remove Pre-Amp Circuit Board from Pre-Amp Package.

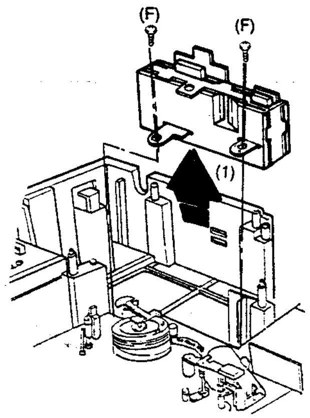


Fig. 2-8

6. Power Circuit Board

A. Remove the Y/C Circuit Board. (See Fig. 2-6)
B. Release 2 screws (G). (See Fig. 2-9)
C. Remove the Power C.B.A in the direction of arrow (2).

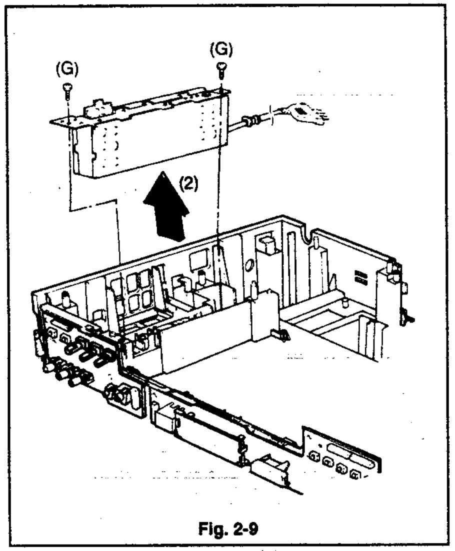


Fig. 2-9

7. BS Circuit Board

A. Remove the Main (1) Circuit Board (See Fig. 2-5)
B. Release 3 screws (H) (See Fig. 2-10)

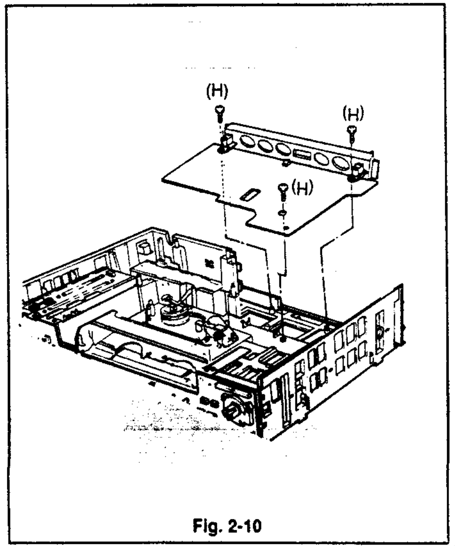
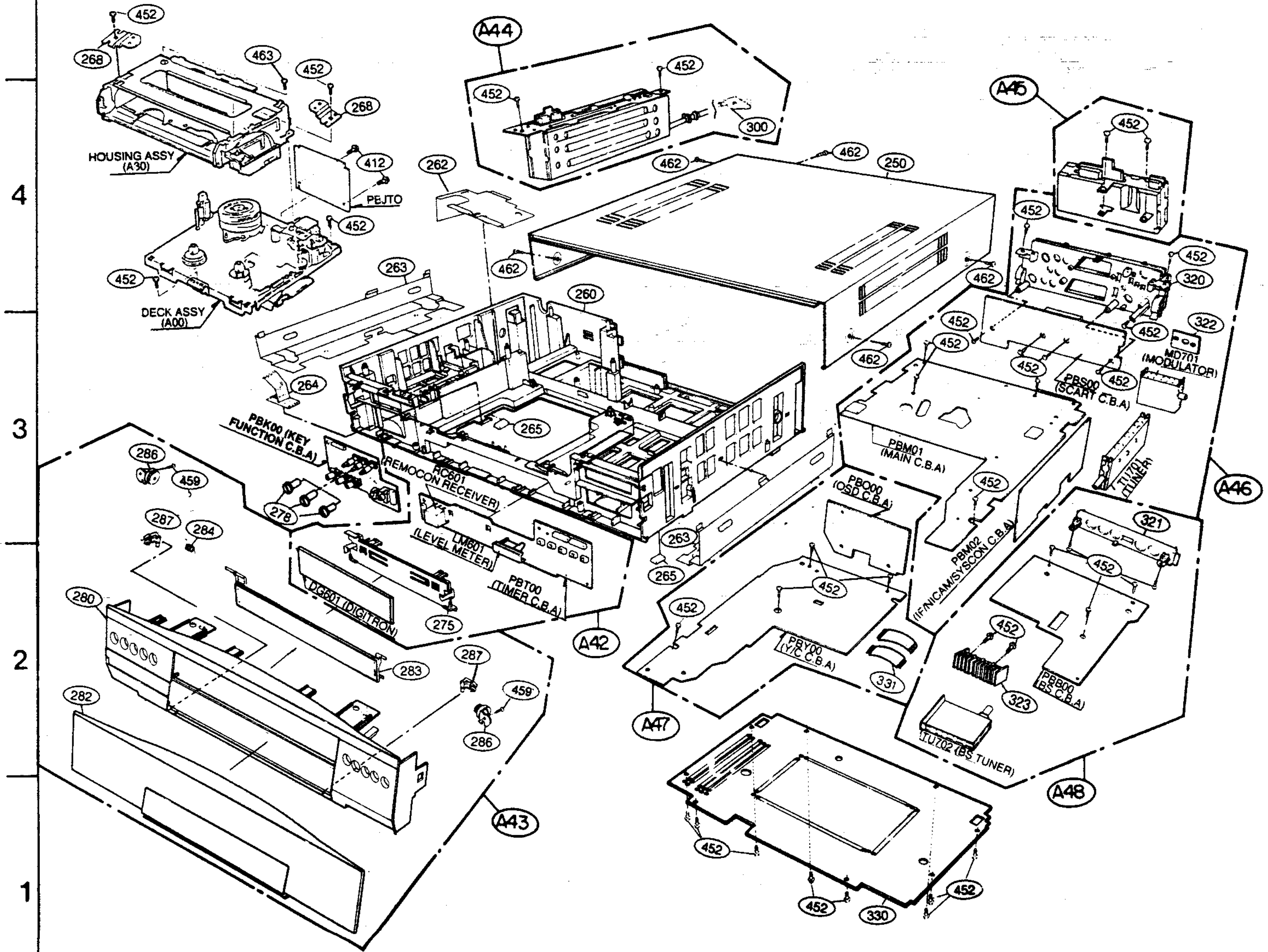


Fig. 2-10

EXPLODED VIEWS

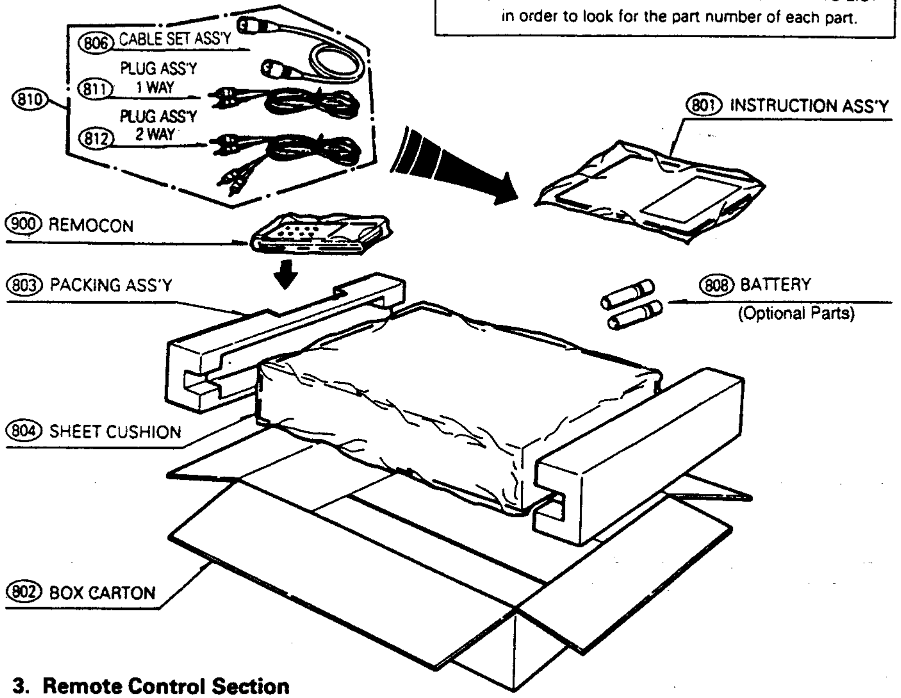
1. Cabinet & Main Frame Section

NOTE) Refer to "SECTION 5 REPLACEMENT PARTS LIST" in order to look for the part number of each part.

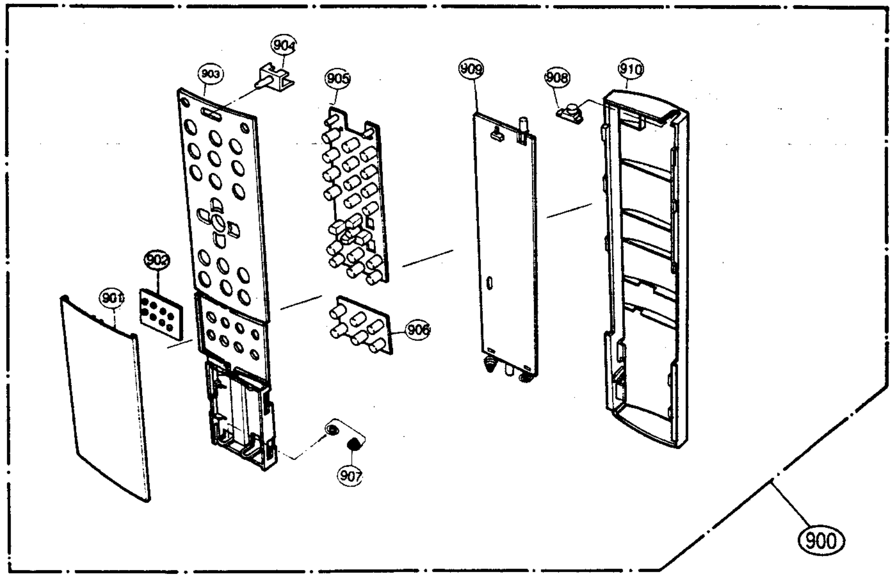

452
268
463
452
268
HOUSING ASSY (A30)
412
PEJTO
452
DECK ASSY (A00)
452
A44
452
452
300
462
262
462
250
263
462
260
264
265
462
462
A45
452
452
452
320
322
452
452
452
452
452
MD701 (MODULATOR)
PBS00 (SCART C.B.A)
PBM01 (MAIN C.B.A)
452
TU701 (TUNER)
A46
PBK00 (KEY FUNCTION C.B.A)
RC601 (REMOCON RECEIVER)
LM601 (LEVEL METER)
PBT00 (TIMER C.B.A)
DG601 (DIGITRON)
286
459
278
287
284
263
265
275
A42
PBO00 (OSD C.B.A)
PBM02 (IF/NICAM/SYSCON C.B.A)
321
452
452
452
PBY00 (Y/C C.B.A)
331
A47
452
323
PBB00 (BS C.B.A)
TU702 (BS TUNER)
A48
280
283
287
459
286
282
A43
452
330
452
452
5
4
3
2
1
A
B
C
D
E
F

2. Packing Accessory Section

NOTE) Refer to "SECTION 5 REPLACEMENT PARTS LIST" in order to look for the part number of each part.



3. Remote Control Section



SECTION 3 ELECTRICAL

ELECTRICAL ADJUSTMENT PROCEDURES

Electronic Test Equipment Requirement:

- Oscilloscope
- Video Signal Generator - PAL, SECAM
- Level Meter
- Frequency Counter
- + Driver
- Test Tape (SP)-PAL, SECAM
- Recording Tape
- Digital Voltmeter

1. Servo Circuit

1) ±PG Adjustment

MODE	SPECIFICATION	MEASUREMENT POINT	ADJUSTMENT POINT
Playback	6.5H±0.5H (416μsec, 1H=64μsec)	TP201 (H. SW) W404 (Video Out Terminal)	VR201

Purpose:
It is for the phase dividing of the Video A, B heads with 180° and the exact tracing of each track to meet head switching point with VHS Spec.

Procedure:

a. Playback a PAL/SP test tape.
b. At this time, the "ATR" is lighting, after pressing the PROG (+) or PROG (-) and adjust the X-Value.
c. Connect CH-1 terminal of oscilloscope to TP201 H. SW, and CH-2 terminal to video out terminal (W404) of VCR
d. Trigger the complex Video signal of CH-2 to CH-1 H. SW, and adjust VR201 so that the distance from A(B) head selection point of H.SW signal to the starting point of horizontal synchronized signal is 6.5H (416μsec, 1H=64μsec).

Reference)

1. ±PG adjustment is practiced in the state of maximum RF level and locked servo system. (MTR Mode.)
2. The deviation between A/B Head Adjustment location should be within ±0.5H (32μsec).
3. The deviation between the specification of adjustment and the practical measurement value should be within ±0.5H (32μsec).
4. Oscilloscope and VCR set should be connected with GND.

Waveform

Composite Video Signal

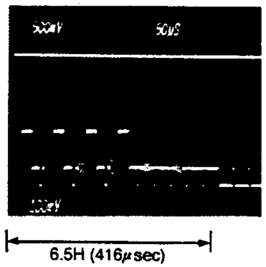


Fig. 3-1

2. Y/C Circuit

1) SECAM Playback Gate Timing Adjustment

MODE	SPECIFICATION	MEASUREMENT POINT	ADJUSTMENT POINT
Playback	Refer to waveform	TP305 Video Out Terminal	VR906

Procedure:

a. Connect CH-1 terminal of the oscilloscope to Video Out Terminal.
b. Connect CH-2 terminal of the oscilloscope to TP305.
c. Playback a SECAM test tape. (with 100% white color bar signal.)
d. Adjust VR906 so that the distance from Sync Gate signal of CH-2 to the starting point of Video Sync. signal on scope CH-1 is 0.5nsec.

Waveform

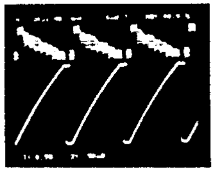


Fig. 3-2

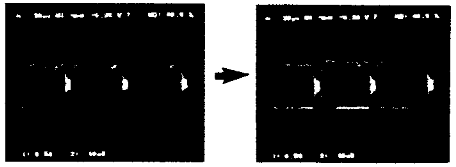
2) SECAM Playback Input Bell Adjustment

MODE	SPECIFICATION	MEASUREMENT POINT	ADJUSTMENT POINT
Playback	Refer to waveform	TP303 Video Out Terminal	FL906

Procedure:

a. Connect CH-1 terminal of the oscilloscope to Video Out Terminal.
b. Connect CH-2 terminal of the oscilloscope to TP303.
c. Playback a SECAM test tape. (with 100% white color bar signal.)
d. Trigger the Video Signal to CH-1, and adjust FL906 so that the envelope waveform of color signal become a flat level if not flat.

Waveform



Before Adjustment After Adjustment

Fig. 3-3

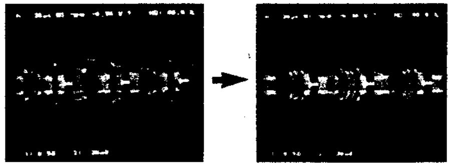
3) SECAM Playback Output Bell Adjustment

MODE	SPECIFICATION	MEASUREMENT POINT	ADJUSTMENT POINT
Playback	Refer to waveform	TP304 Video Out Terminal	FL908

Procedure:

a. Connect CH-1 terminal of the oscilloscope to Video Out Terminal.
b. Connect CH-2 terminal of the oscilloscope to TP304.
c. Playback a SECAM test tape. (with 100% white color bar signal.)
d. Trigger the Video Signal to CH-1, and adjust FL908 so that the Magenta part of color signal become a flat level if not flat.

Waveform



Before Adjustment After Adjustment

Fig. 3-4

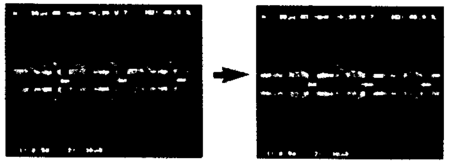
4) SECAM Recording Bell Adjustment

MODE	SPECIFICATION	MEASUREMENT POINT	ADJUSTMENT POINT
Record	Refer to waveform	TP303 Video Out Terminal	FL905

Procedure:

a. Connect the Video Signal Generator to Video In Terminal.
b. Connect CH-1 terminal of the oscilloscope to Video Out Terminal.
c. Connect CH-2 terminal of the oscilloscope to TP303.
d. Input the SECAM color bar signal (with 100% white signal) to Video In Terminal.
e. Record the SP mode.
f. Trigger the Video Signal to CH-1, and adjust FL905 so that the Magenta part of color signal become a flat level if not flat.

Waveform



Before Adjustment After Adjustment

Fig. 3-5

3. Audio Circuit

1) Record Oscillation Voltage Adjustment

MODE	SPECIFICATION	MEASUREMENT POINT	ADJUSTMENT POINT
Record	2.4±0.2mV	TP451 (+), TP452 (-)	VR451

Purpose:
This is for adjusting bias voltage to specification in recording.

Procedure:
a. Connect the (+) terminal of Level Meter to TP451 (+).
b. Connect the (-) terminal of Level Meter to TP452 (-).
c. Confirm that the Oscillation Voltage is 2.4±0.2mV.
d. At this time, Adjust VR451 so that the Oscillation voltage fit to specification.

Reference:
The Set and Oscilloscope should be connected with 1:1 probe.

4. Hi-Fi Circuit

1) Fo Adjustment

MODE	SPECIFICATION	MEASUREMENT POINT	ADJUSTMENT POINT
AV/EE mode (without signal)	1.4MHz±5KHz 1.8MHz±5KHz	TP402 TP401	VR402 VR401

Procedure:
A. With Jig for adjusting fo
  a. Connect the Jig input terminal for adjusting fo to TP402, TP401.
  b. Connect the Jig output terminal for adjusting fo to the Frequency Counter.
  c. Choose the 1.4MHz, 1.8MHz Switch of the Jig for adjusting fo.
  d. Adjust VR402 so that the Frequency Counter is 1.4MHz±5KHz and VR401 so that the Frequency Counter is 1.8MHz±5KHz.

B. Without Jig for adjusting fo
  a. Connect the Frequency Counter to TP402 and adjust VR402 so that the Frequency Counter is 1.4MHz±5KHz.
  b. Connect the Frequency Counter to TP401 and adjust VR401 so that the Frequency Counter is 1.8MHz±5KHz.

Reference:
The Set and the Frequency Counter should be connected with 1:1 probe both A and B method.

5. Tuner/IF Circuit

1) AFC Adjustment

MODE	SPECIFICATION	MEASUREMENT POINT	ADJUSTMENT POINT
CH-28 (527.25MHz) SECAM L Reception	DC 3.0±0.1V	ICA01 Pin ⑮	TA01

Procedure:
a. Select the TV Programme Mode on OSD Menu.
b. Select the SECAM on the TV Programme Mode.
c. Be tuning CH-28 (527.25MHz, strength of RF electrical field : 70dBμV) fine.
d. Connect the Digital Voltmeter to ICA01 Pin ⑮.
e. Adjust TA01 so that the Digital Voltmeter is DC 3.0±0.1V.

2) RF AGC Adjustment

MODE	SPECIFICATION	MEASUREMENT POINT	ADJUSTMENT POINT
CH-11 (217.25MHz) Normal Reception	DC 5.5± 0.1V	TUNER AGC Terminal	VR701

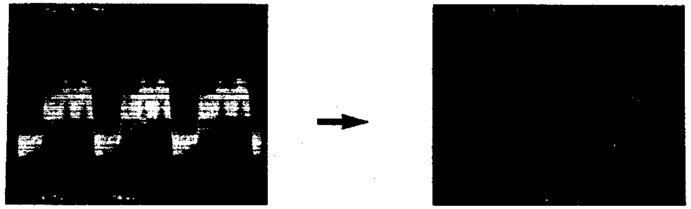
Procedure:
a. Be tuning CH-11 (217.25MHz, strength of RF electric field: 70dBμV) fine.
b. Connect the Digital Voltmeter to AGC terminal of TU701.
c. Adjust VR701 so that the Digital Voltmeter is DC 5.5±0.1V.

3) SIF Adjustment

MODE	SPECIFICATION	MEASUREMENT POINT	ADJUSTMENT POINT
CH-11 (217.25MHz) Normal Reception	Refer to Adjustment	ICA02 Pin ⑫	TA03

Procedure:
a. Be tuning CH-11 (217.25MHz, strength of RF electric field : 70dBμV) fine.
b. Connect the Oscilloscope to ICA02 Pin ⑫.
c. Adjust TA03 so that the waveform of Oscilloscope is as shown in Fig. 3-6.

Waveform



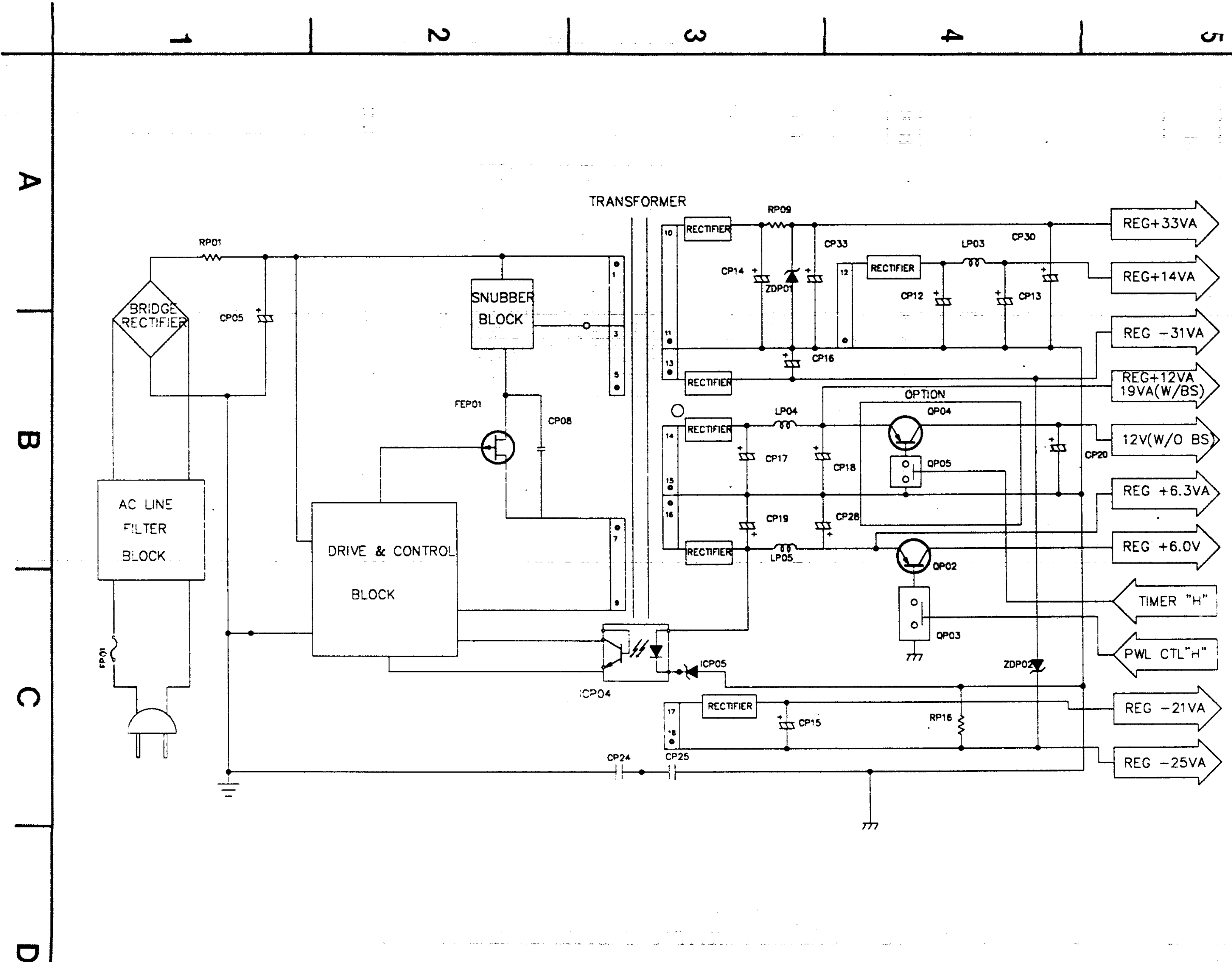
Before Adjustment

After Adjustment

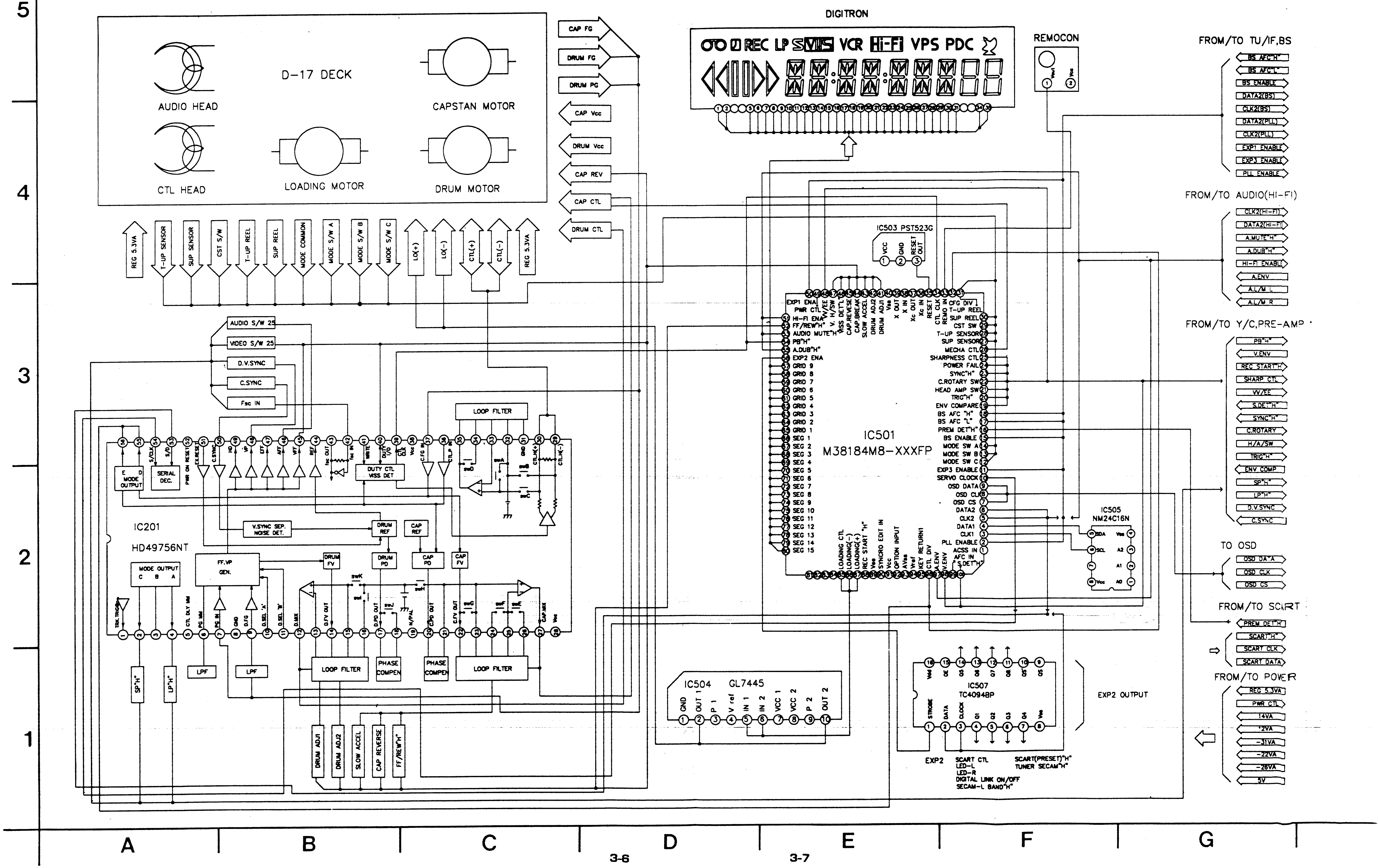
Fig. 3-6

BLOCK DIAGRAMS

1. Power (SMPS) Block Diagram

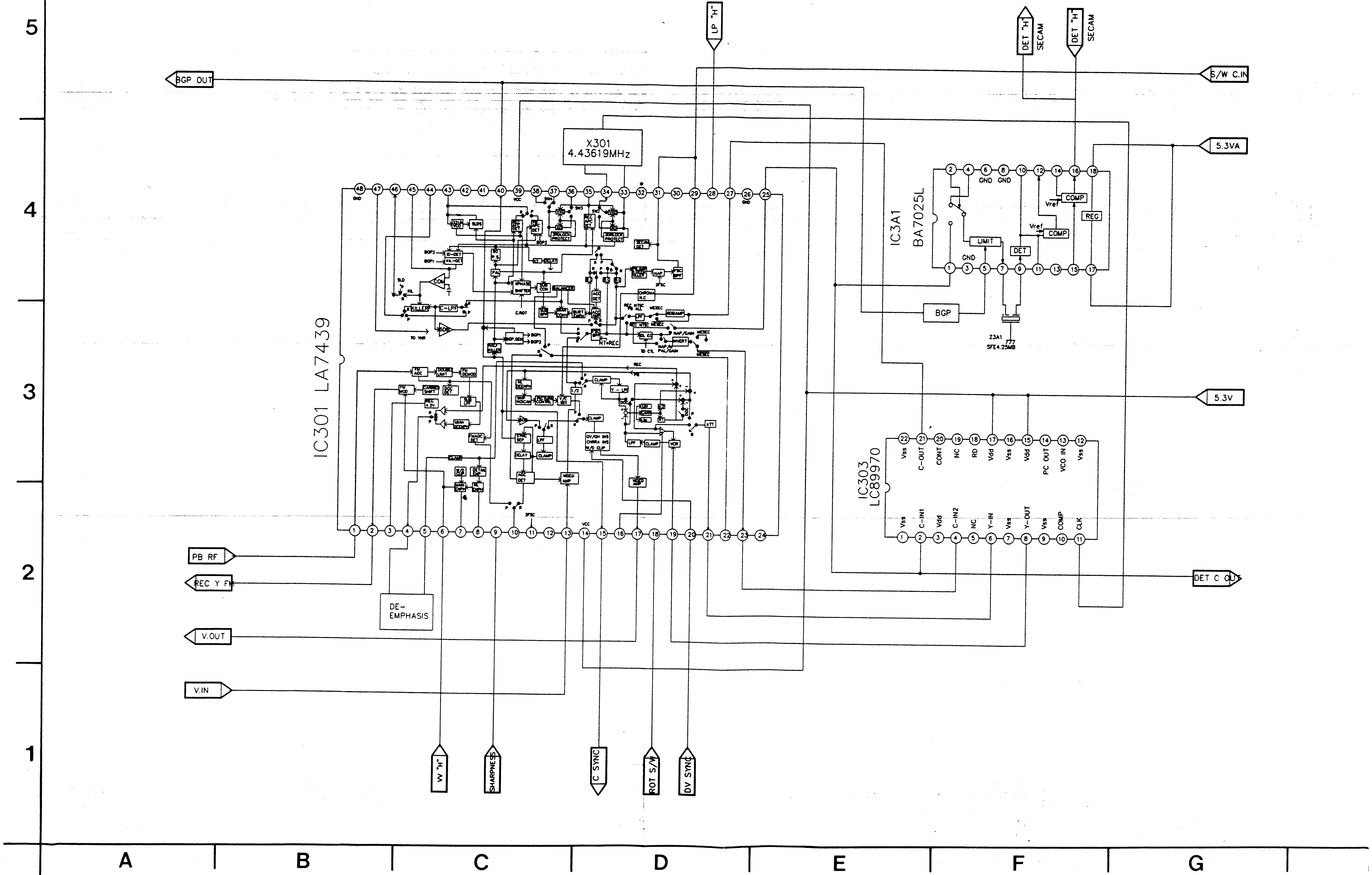

1
2
3
4
5
A
B
C
D
TRANSFORMER
RP01
BRIDGE RECTIFIER
CP05
SNUBBER BLOCK
FEP01
CP08
AC LINE FILTER BLOCK
DRIVE & CONTROL BLOCK
FP01
ICP04
ICP05
CP24
CP25
RECTIFIER
RP09
CP33
CP14
ZDP01
CP16
CP12
LP03
CP30
CP13
LP04
CP17
CP18
CP19
CP28
LP05
OPTION
QP04
QP05
QP02
QP03
CP20
ZDP02
CP15
RP16
REG+33VA
REG+14VA
REG −31VA
REG+12VA
19VA(W/BS)
12V(W/O BS)
REG +6.3VA
REG +6.0V
TIMER "H"
PWL CTL"H"
REG −21VA
REG −25VA

2. Servo, System Control & Timer Block Diagram

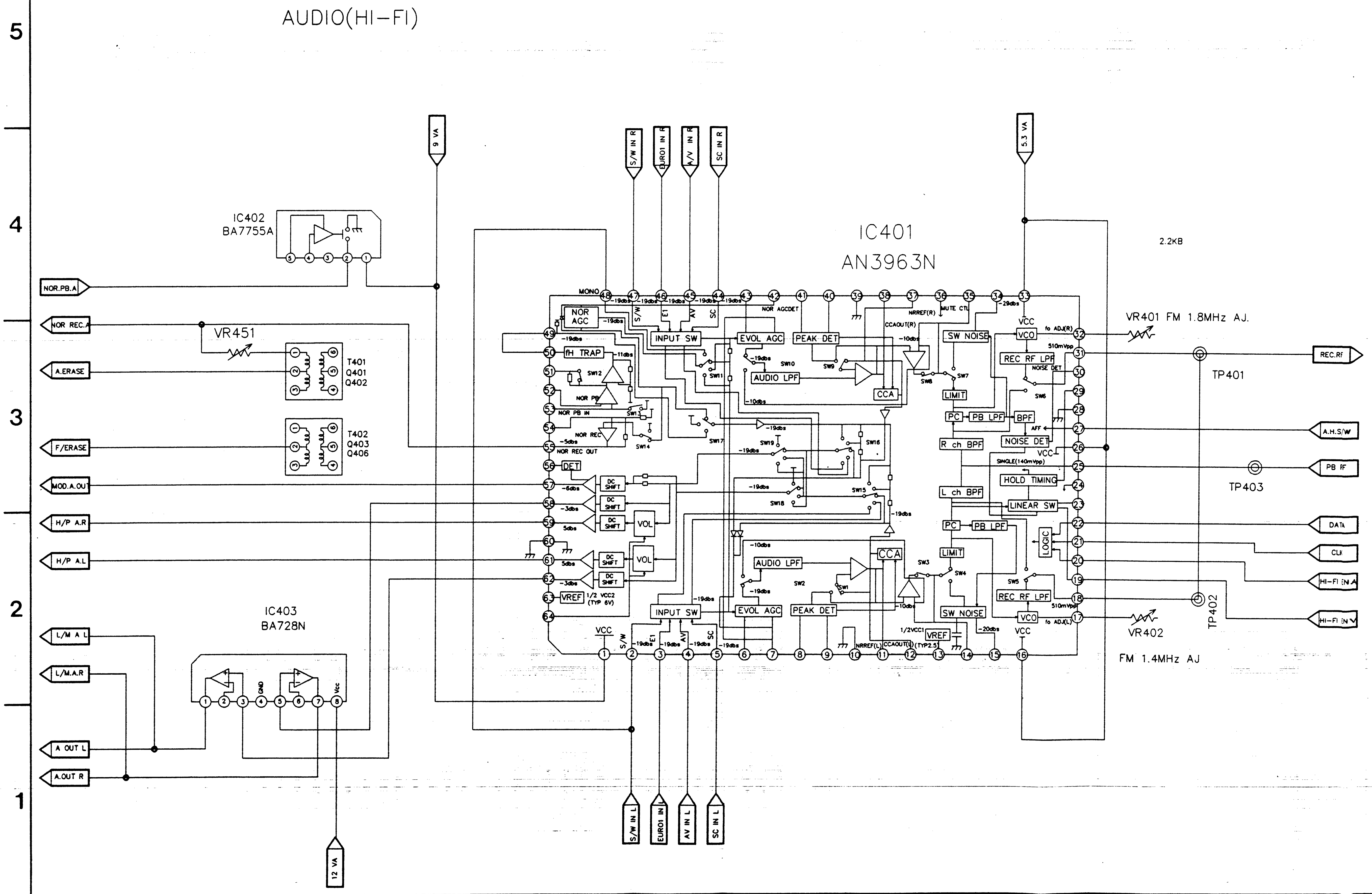


D-17 DECK
AUDIO HEAD
CAPSTAN MOTOR
CTL HEAD
LOADING MOTOR
DRUM MOTOR
CAP FG
DRUM FG
DRUM PG
CAP Vcc
DRUM Vcc
CAP REV
CAP CTL
DRUM CTL
REG 5.3VA
T-UP SENSOR
SUP SENSOR
CST S/W
T-UP REEL
SUP REEL
MODE COMMON
MODE S/W A
MODE S/W B
MODE S/W C
LO(+)
LO(-)
CTL(+)
CTL(-)
REG 5.3VA
AUDIO S/W 25
VIDEO S/W 25
D.V.SYNC
C.SYNC
Fsc IN
LOOP FILTER
IC201
HD49756NT
E D MODE OUTPUT
SERIAL DEC.
S/CLK
S/D
PWR ON RESET
EX.RESET
C.SYNC
HD
VP
EFF
AFF
VFF
REF
fsc OUT
fsc IN
WRITE
DUTY I/O
CTL CLK
Vcc
C.FG IN
CTL.P IN
GND
CTL.H(+)
CTL.H(-)
DUTY CTL VISS DET
swA
swB
swC
swD
V.SYNC SEP. NOISE DET.
DRUM REF
CAP REF
MODE OUTPUT C B A
FF.VP GEN.
DRUM FV
DRUM PD
CAP PD
CAP FV
swK
swI
swJ
swH
swG
swF
swE
TRK. TRIGG
CTL DLY MM
PG MM
PG IN
GND
D.FG
D.SEL 'A'
D.SEL 'B'
D.MIX
D.FV OUT
D.PD OUT
N/PAL
C.PD OUT
C.FV OUT
CAP.MIX
Vss
SP"H"
LP"H"
LPF
LPF
LOOP FILTER
PHASE COMPEN
PHASE COMPEN
LOOP FILTER
DRUM ADJ1
DRUM ADJ2
SLOW ACCEL
CAP REVERSE
FF/REW"H"
DIGITRON
OO Ø REC LP S-VHS VCR Hi-Fi VPS PDC
REMOCON
Vout
Vcc
IC503 PST523G
VCC
GND
RESET OUT
IC501
M38184M8-XXXFP
EXP1 ENA
PWR CTL
W/EE
V. H/SW
VISS DET"L"
CAP.REVESE
CAP.BREAK
SLOW ACCEL
DRUM ADJ2
DRUM ADJ1
Vss
X OUT
X IN
Xc OUT
Xc IN
RESET
CTL CLK
REMO IN
CFG DIV
T-UP REEL
HI-FI ENA
FF/REW"H"
AUDIO MUTE"H"
PB"H"
A.DUB"H"
EXP2 ENA
GRID 9
GRID 8
GRID 7
GRID 6
GRID 5
GRID 4
GRID 3
GRID 2
GRID 1
SEG 1
SEG 2
SEG 3
SEG 4
SEG 5
SEG 6
SEG 7
SEG 8
SEG 9
SEG 10
SEG 11
SEG 12
SEG 13
SEG 14
SEG 15
SUP REEL
CST SW
T-UP SENSOR
SUP SENSOR
MECHA CTL
SHARPNESS CTL
POWER FAIL
SYNC"H"
C.ROTARY SW
HEAD AMP SW
TRIG"H"
ENV COMPARE
BS AFC "H"
BS AFC "L"
PREM DET"H"
BS ENABLE
MODE SW A
MODE SW B
MODE SW C
EXP3 ENABLE
SERVO CLOCK
OSD DATA
OSD CLK
OSD CS
DATA2
CLK2
DATA1
CLK1
PLL ENABLE
ACSS IN
AFC IN
S.DET"H"
LOADING CTL
LOADING(-)
LOADING(+)
REC START "H"
Vee
SYNCRO EDIT IN
Vcc
OPTION INPUT
AVss
Vref
KEY RETURN1
CTL DIV
A.ENV
V.ENV
IC505
NM24C16N
SDA
SCL
Vss
Vcc
A2
A1
A0
IC504 GL7445
GND
OUT 1
P 1
V ref
IN 1
IN 2
VCC 1
VCC 2
P 2
OUT 2
IC507
TC40948P
Vdd
OE
Q5
Q6
Q7
Q8
QS'
QS
STROBE
DATA
CLOCK
Q1
Q2
Q3
Q4
Vss
EXP2 OUTPUT
EXP2
SCART CTL
LED-L
LED-R
DIGITAL LINK ON/OFF
SECAM-L BAND"H"
SCART(PRESET)"H"
TUNER SECAM"H"
FROM/TO TU/IF,BS
BS AFC"H"
BS AFC"L"
BS ENABLE
DATA2(BS)
CLK2(BS)
DATA2(PLL)
CLK2(PLL)
EXP1 ENABLE
EXP3 ENABLE
PLL ENABLE
FROM/TO AUDIO(HI-FI)
CLK2(HI-FI)
DATA2(HI-FI)
A.MUTE"H"
A.DUB"H"
HI-FI ENABLE
A.ENV
A.L/M L
A.L/M R
FROM/TO Y/C,PRE-AMP
PB"H"
V.ENV
REC START"H"
SHARP CTL
W/EE
S.DET"H"
SYNC"H"
C.ROTARY
H/A/SW
TRIG"H"
ENV COMP
SP"H"
LP"H"
D.V.SYNC
C.SYNC
TO OSD
OSD DATA
OSD CLK
OSD CS
FROM/TO SCART
PREM DET"H"
SCART"H"
SCART CLK
SCART DATA
FROM/TO POWER
REG 5.3VA
PWR CTL
14VA
12VA
-31VA
-22VA
-28VA
5V
5
4
3
2
1
A
B
C
D
E
F
G

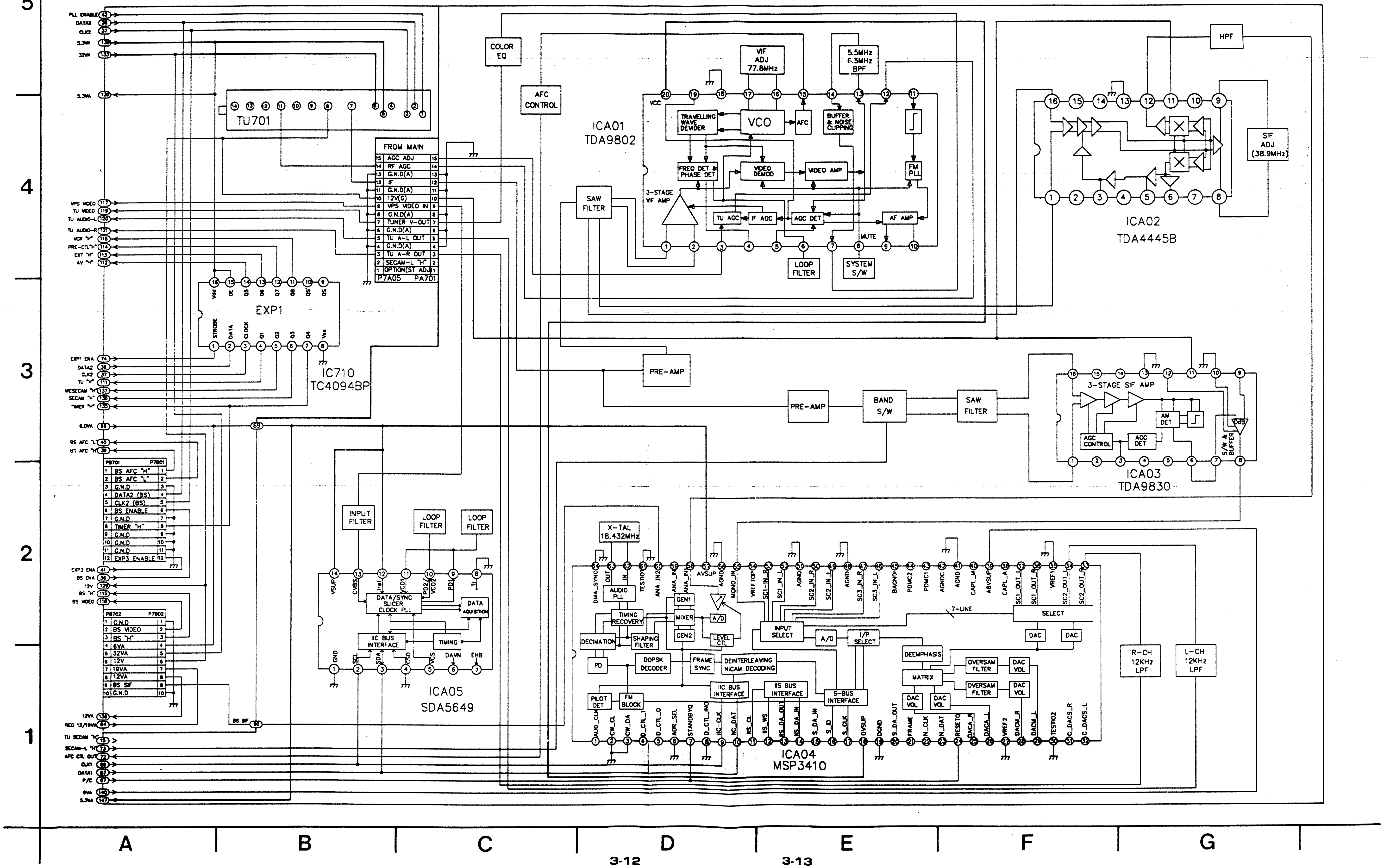
3. Y/C Block Diagram


5
4
3
2
1
A
B
C
D
E
F
G
BGP OUT
LP "H"
DET "H" SECAM
DET "H" SECAM
S/W C.IN
X301
4.43619MHz
5.3VA
IC3A1
BA7025L
GND
GND
GND
LIMIT
DET
Vref
Vref
COMP
COMP
REG
BGP
Z3A1
SFE4.25MB
IC301 LA7439
GND
GND
VCC
VCC
KILLER
C-LPF
CLAMP
Y-LPF
ATT
TO YNR
5.3V
IC303
LC89970
Vss
C-OUT
CONT
NC
RD
Vdd
Vss
Vdd
PC OUT
VCO IN
Vss
Vss
C-IN1
Vdd
C-IN2
NC
Y-IN
Vss
Y-OUT
Vss
COMP
CLK
PB RF
REC Y FM
DE-EMPHASIS
V.OUT
V.IN
DET C OUT
W "H"
SHARPNESS
C SYNC
ROT S/W
DV SYNC

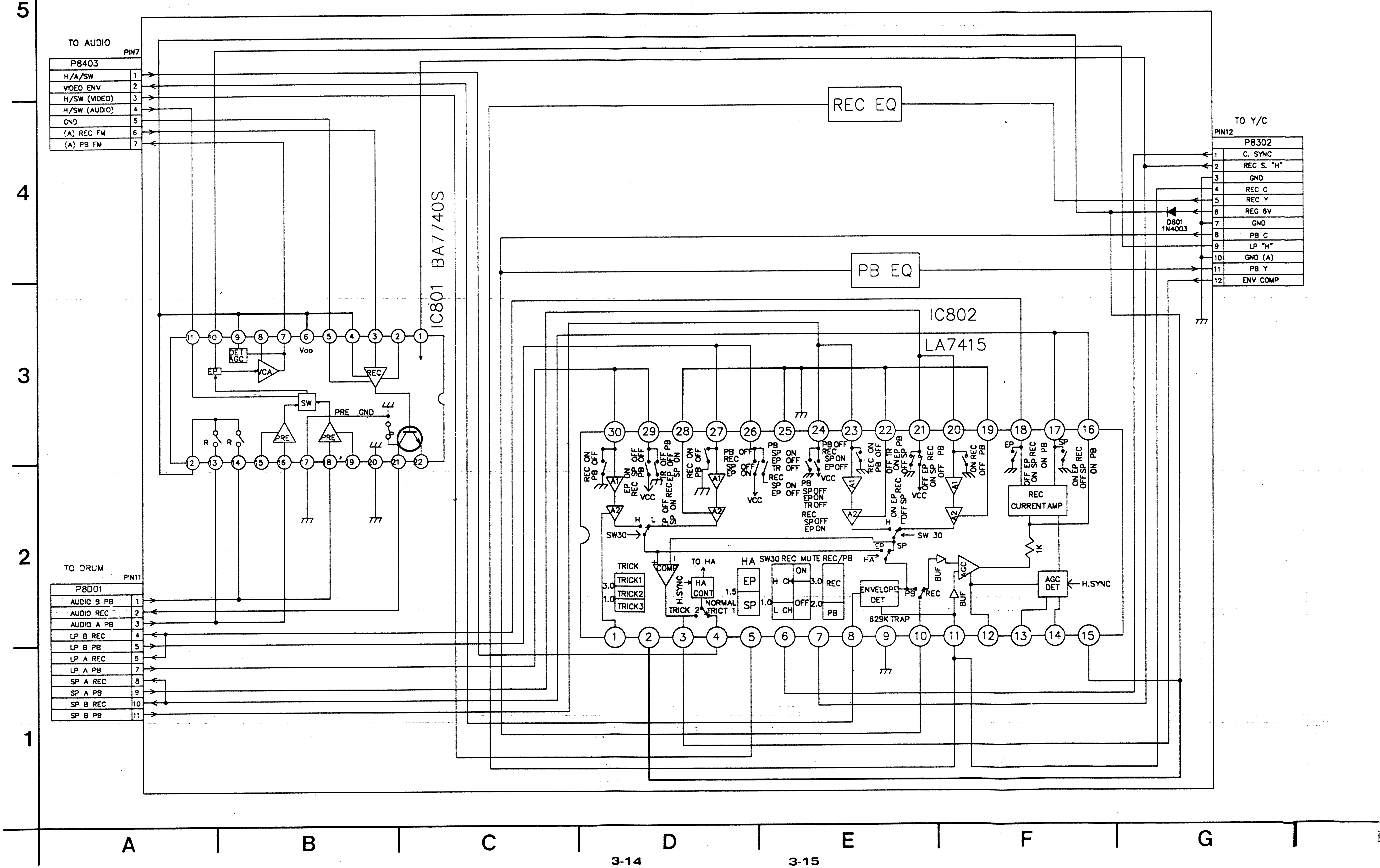
4. Audio Block Diagram


AUDIO(HI-FI)
IC401
AN3963N
IC402
BA7755A
IC403
BA728N
9 VA
5.3 VA
12 VA
S/W IN R
EURO1 IN R
A/V IN R
SC IN R
S/W IN L
EURO1 IN L
AV IN L
SC IN L
NOR.PB.A
NOR REC.A
A.ERASE
F/ERASE
MOD.A.OUT
H/P A.R
H/P A.L
L/M A L
L/M.A.R
A OUT L
A.OUT R
VR451
T401
Q401
Q402
T402
Q403
Q406
2.2KB
VR401 FM 1.8MHz AJ.
VR402
FM 1.4MHz AJ
TP401
TP402
TP403
REC.RF
A.H.S/W
PB RF
DATA
CLK
HI-FI EN A
HI-FI EN V
MONO
NOR AGC
INPUT SW
EVOL AGC
PEAK DET
AUDIO LPF
CCA
SW NOISE
VCO
REC RF LPF
LIMIT
PC
PB LPF
BPF
R ch BPF
L ch BPF
NOISE DET
HOLD TIMING
LINEAR SW
LOGIC
fH TRAP
NOR PB
NOR REC
NOR REC OUT
DET
DC SHIFT
VOL
VREF
1/2 VCC2 (TYP 6V)
VCC
NOR AGCDET
NRREF(R)
MUTE CTL
CCAOUT(R)
NRREF(L)
CCAOUT(L)
1/2VCC1 (TYP2.5)
fo ADJ(R)
fo ADJ(L)
510mVpp
AFF
SINGLE(140mVpp)
GND
Vcc
5
4
3
2
1
A
B
C
D
E
F
G

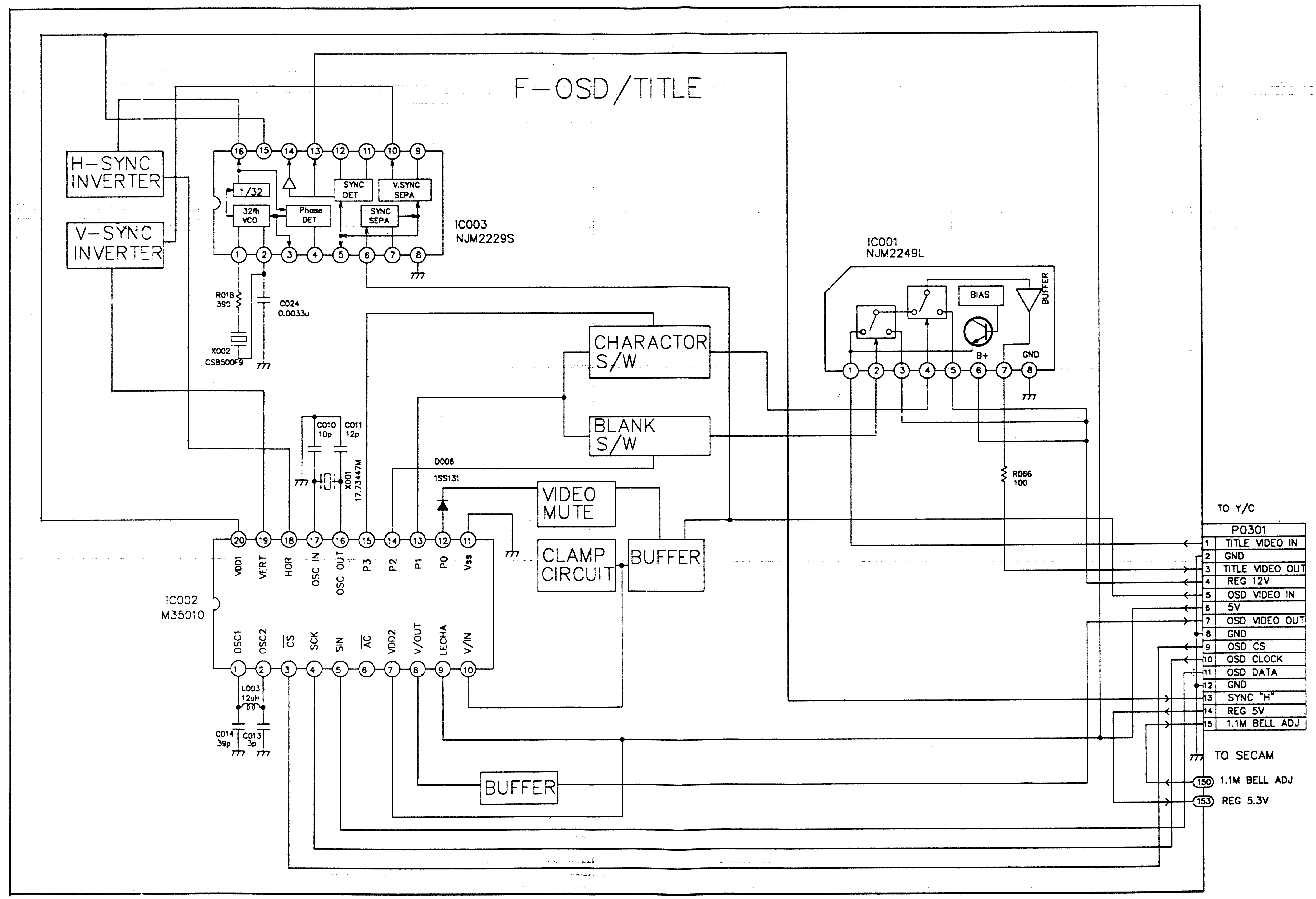
5. Tuner/IF Block Diagram


PLL ENABLE 42
DATA2 38
CLK2 37
5.3VA 139
32VA 133
5.3VA 139
VPS VIDEO 117
TU VIDEO 119
TU AUDIO-L 120
TU AUDIO-R 121
VCR "H" 116
PRE-CTL"H" 114
EXT "H" 113
AV "H" 112
EXP1 ENA 74
DATA2 38
CLK2 37
TU "H" 111
MESECAM "H" 137
SECAM "H" 136
TIMER "H" 135
6.0VA 69
BS AFC "L" 40
BS AFC "H" 39
PB701 P7B01
1 BS AFC "H" 1
2 BS AFC "L" 2
3 G.N.D 3
4 DATA2 (BS) 4
5 CLK2 (BS) 5
6 BS ENABLE 6
7 G.N.D 7
8 TIMER "H" 8
9 G.N.D 9
10 G.N.D 10
11 G.N.D 11
12 EXP3 ENABLE 12
EXP3 ENA 41
BS ENA 36
12V 129
BS "H" 115
BS VIDEO 118
PB702 P7B02
1 G.N.D 1
2 BS VIDEO 2
3 BS "H" 3
4 6VA 4
5 32VA 5
6 12V 6
7 19VA 7
8 12VA 8
9 BS SIF 9
10 G.N.D 10
12VA 138
REG 12/19VA 64
TU SECAM "H" 15
SECAM-L "H" 73
AFC CTL OUT 72
CLK1 66
DATA1 67
P/C 67
9VA 140
5.3VA 147
TU701
FROM MAIN
15 AGC ADJ 15
14 RF AGC 14
13 G.N.D(A) 13
12 IF 12
11 G.N.D(A) 11
10 12V(G) 10
9 VPS VIDEO IN 9
8 G.N.D(A) 8
7 TUNER V-OUT 7
6 G.N.D(A) 6
5 TU A-L OUT 5
4 G.N.D(A) 4
3 TU A-R OUT 3
2 SECAM-L "H" 2
1 OPTION(ST ADJ) 1
P7A05 PA701
EXP1
Vdd
OE
Q5
Q6
Q7
Q8
Q'S
QS
STROBE
DATA
CLOCK
Q1
Q2
Q3
Q4
Vss
IC710
TC4094BP
69
BS SIF 60
COLOR EQ
AFC CONTROL
SAW FILTER
ICA01
TDA9802
VIF ADJ 77.8MHz
5.5MHz 6.5MHz BPF
VCC
TRAVELLING WAVE DEVIDER
VCO
AFC
BUFFER & NOISE CLIPPING
FREQ DET & PHASE DET
VIDEO DEMOD
VIDEO AMP
FM PLL
3-STAGE VIF AMP
TU AGC
IF AGC
AGC DET
AF AMP
MUTE
LOOP FILTER
SYSTEM S/W
HPF
SIF ADJ (38.9MHz)
ICA02
TDA4445B
PRE-AMP
PRE-AMP
BAND S/W
SAW FILTER
3-STAGE SIF AMP
AM DET
AGC CONTROL
AGC DET
S/W & BUFFER
ICA03
TDA9830
INPUT FILTER
LOOP FILTER
LOOP FILTER
VSUP
CVBS
Iref
VCO1
PD2/VCO2
PD1
DATA/SYNC SLICER CLOCK PLL
DATA AQUISITION
IIC BUS INTERFACE
TIMING
GND
SCL
SDA
CSO
VCS
DAVN
EHB
ICA05
SDA5649
X-TAL 18.432MHz
DMA_SYNC
XTAL_OUT
XTAL_IN
TESTEN
ANA_IN2
ANA_IN-
ANA_IN+
AVSUP
AGNC
MONO_IN
VREFTOP
SC1_IN_R
SC1_IN_L
AGND
SC2_IN_R
SC2_IN_L
AGND
SC3_IN_R
SC3_IN_L
BAGND
PDMC2
PDMC1
AGNDC
AGND
CAPL_M
AHVSUP
CAPL_A
SC1_OUT_L
SC1_OUT_R
VREF1
SC2_OUT_L
SC2_OUT_R
AUDIO PLL
GEN1
TIMING RECOVERY
MIXER
A/D
GEN2
DECIMATION
SHAPING FILTER
LEVEL CTL
INPUT SELECT
A/D
I/P SELECT
7-LINE
SELECT
DAC
DAC
PD
DQPSK DECODER
FRAME SYNC
DEINTERLEAVING NICAM DECODING
DEEMPHASIS
MATRIX
OVERSAM FILTER
DAC VOL
OVERSAM FILTER
DAC VOL
PILOT DET
FM BLOCK
IIC BUS INTERFACE
IIS BUS INTERFACE
S-BUS INTERFACE
DAC VOL
DAC VOL
AUD_CL_OUT
CW_CL
CW_DA
D_CTL_I
D_CTL_O
ADR_SEL
STANDBYQ
D_CTL_INQ
IIC_CLK
IIC_DAT
IIS_CL
IIS_WS
IIS_DA_OUT
IIS_DA_IN
S_DA_IN
S_ID
S_CLK
DVSUP
DGND
S_DA_OUT
FRAME
N_CLK
N_DAT
RESETQ
DACA_R
DACA_L
VREF2
DACM_R
DACM_L
TESTIO2
C_DACS_R
C_DACS_L
ICA04
MSP3410
R-CH 12KHz LPF
L-CH 12KHz LPF
5
4
3
2
1
A
B
C
D
E
F
G

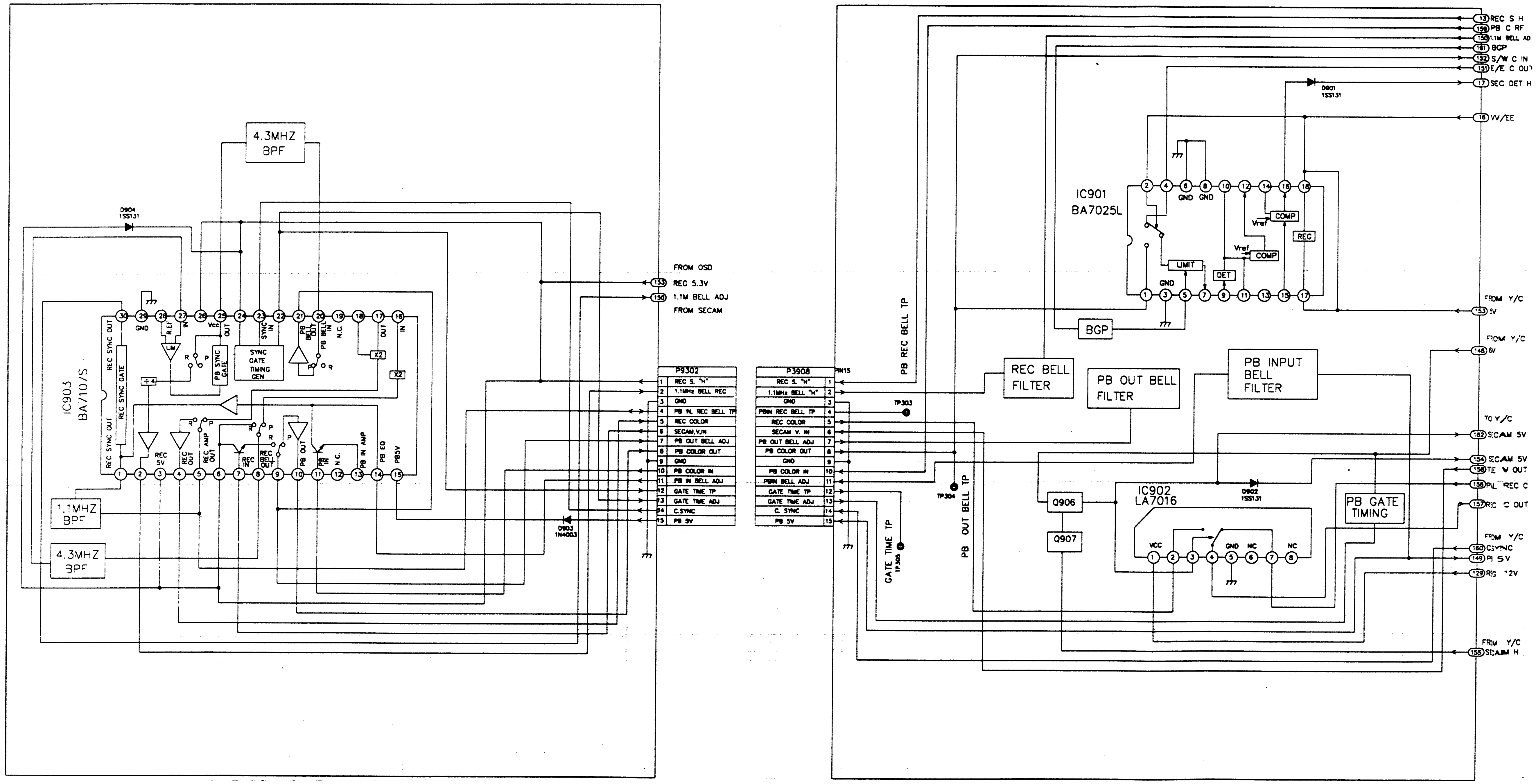
6. Pre-Amp Block Diagram


TO AUDIO
PIN7
P8403
1 H/A/SW
2 VIDEO ENV
3 H/SW (VIDEO)
4 H/SW (AUDIO)
5 GND
6 (A) REC FM
7 (A) PB FM
TO DRUM
PIN11
P8D01
1 AUDIO B PB
2 AUDIO REC
3 AUDIO A PB
4 LP B REC
5 LP B PB
6 LP A REC
7 LP A PB
8 SP A REC
9 SP A PB
10 SP B REC
11 SP B PB
IC801 BA7740S
DET AGC
VCA
EP
REC
SW
PRE
PRE GND
Vcc
REC EQ
PB EQ
IC802
LA7415
TO Y/C
PIN12
P8302
1 C. SYNC
2 REC S. "H"
3 GND
4 REC C
5 REC Y
6 REG 6V
7 GND
8 PB C
9 LP "H"
10 GND (A)
11 PB Y
12 ENV COMP
D801
1N4003
REC CURRENT AMP
SW30
SW 30
COMP
TRICK
TRICK1
TRICK2
TRICK3
TO HA
H.SYNC
HA CONT
NORMAL
TRICT 1
TRICK 2
HA
EP
SP
SW30 REC MUTE REC/PB
H CH
L CH
ON
OFF
REC
PB
ENVELOPE DET
629K TRAP
BUF
AGC
AGC DET
H.SYNC
1K
A1
A2
VCC
5
4
3
2
1
A
B
C
D
E
F
G

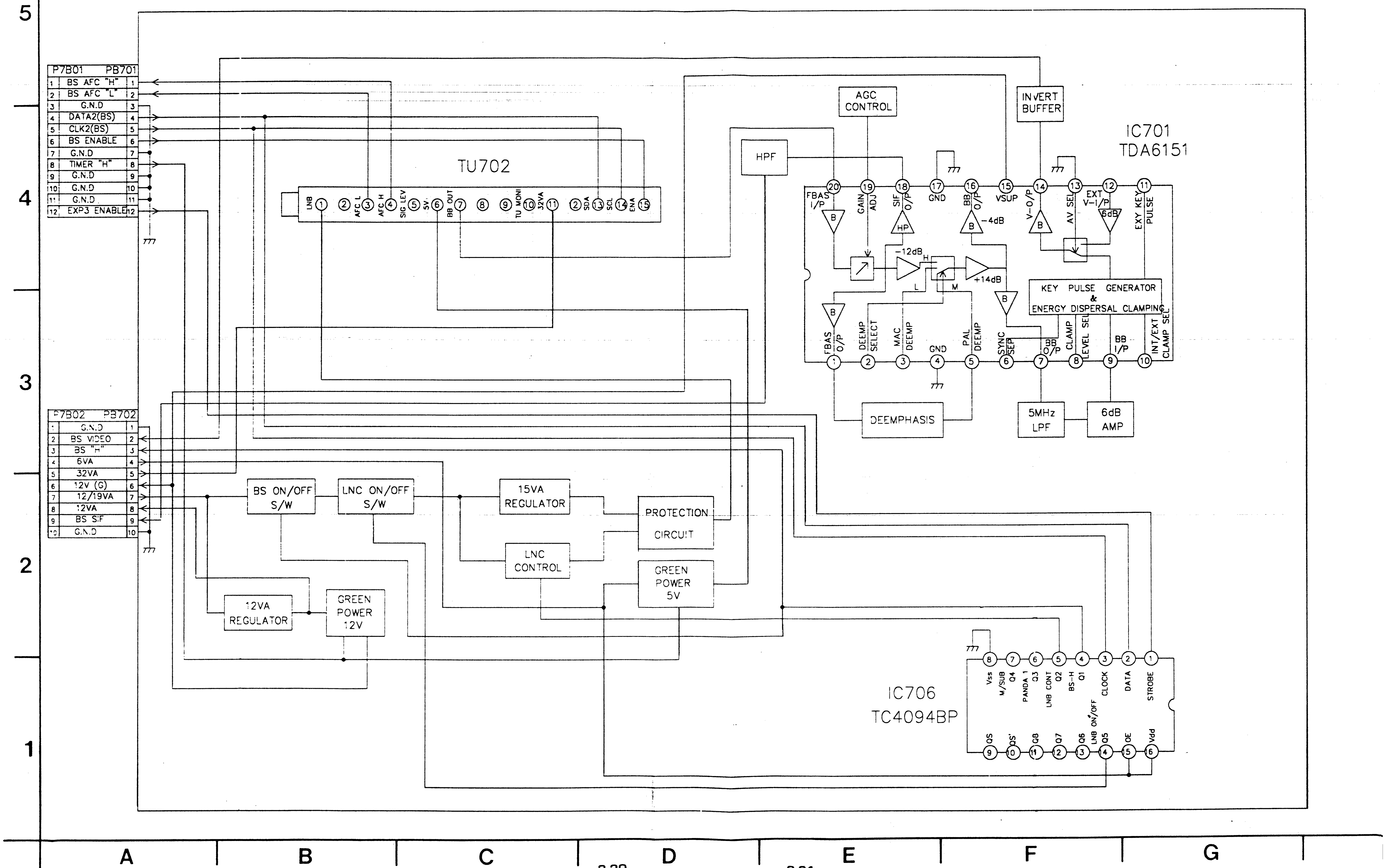
7. Function OSD & Title Block Diagram


F-OSD/TITLE
H-SYNC INVERTER
V-SYNC INVERTER
1/32
32th VCO
Phase DET
SYNC DET
V.SYNC SEPA
SYNC SEPA
IC003
NJM2229S
R018
390
C024
0.0033u
X002
CSB500F9
IC001
NJM2249L
BIAS
BUFFER
B+
GND
CHARACTOR S/W
BLANK S/W
C010
10p
C011
12p
X001
17.73447M
D006
1SS131
VIDEO MUTE
CLAMP CIRCUIT
BUFFER
R066
100
IC002
M35010
VDD1
VERT
HOR
OSC IN
OSC OUT
P3
P2
P1
P0
Vss
OSC1
OSC2
CS
SCK
SIN
AC
VDD2
V/OUT
LECHA
V/IN
L003
12uH
C014
39p
C013
3p
BUFFER
TO Y/C
P0301
1 TITLE VIDEO IN
2 GND
3 TITLE VIDEO OUT
4 REG 12V
5 OSD VIDEO IN
6 5V
7 OSD VIDEO OUT
8 GND
9 OSD CS
10 OSD CLOCK
11 OSD DATA
12 GND
13 SYNC "H"
14 REG 5V
15 1.1M BELL ADJ
TO SECAM
150 1.1M BELL ADJ
153 REG 5.3V

8. SECAM Block Diagram


4.3MHZ BPF
D904 1SS131
IC903 BA710/S
REC SYNC OUT
REC SYNC GATE
REC SYNC OUT
GND
R.EF
IN
Vcc
OUT
SYNC IN
PB BELL OUT
PB BELL IN
N.C.
OUT
IN
LIM
PB SYNC GATE
SYNC GATE TIMING GEN
X2
X2
÷4
R
P
REC 5V
REC OUT
REC AMP OUT
REC IN
REC BELL OUT
PB OUT
PB IN
N.C.
PB IN AMP
PB EQ
PB5V
1.1MHZ BPF
4.3MHZ BPF
FROM OSD
153 REG 5.3V
150 1.1M BELL ADJ
FROM SECAM
D903 1N4003
P9302
1 REC S. "H"
2 1.1MHz BELL REC
3 GND
4 PB IN. REC BELL TP
5 REC COLOR
6 SECAM,V,IN
7 PB OUT BELL ADJ
8 PB COLOR OUT
9 GND
10 PB COLOR IN
11 PB IN BELL ADJ
12 GATE TIME TP
13 GATE TIME ADJ
14 C.SYNC
15 PB 5V
P3908
PIN15
REC S. "H" 1
1.1MHz BELL "H" 2
GND 3
PBIN REC BELL TP 4
REC COLOR 5
SECAM V. IN 6
PB OUT BELL ADJ 7
PB COLOR OUT 8
GND 9
PB COLOR IN 10
PBIN BELL ADJ 11
GATE TIME TP 12
GATE TIME ADJ 13
C. SYNC 14
PB 5V 15
TP303
TP304
TP305
GATE TIME TP
PB REC BELL TP
PB OUT BELL TP
REC BELL FILTER
PB OUT BELL FILTER
PB INPUT BELL FILTER
BGP
IC901 BA7025L
GND GND
COMP
Vref
REG
Vref
COMP
LIMIT
DET
GND
D901 1SS131
IC902 LA7016
VCC
GND
NC
NC
D902 1SS131
Q906
Q907
PB GATE TIMING
13 REC S H
159 PB C RF
150 1.1M BELL AD
161 BGP
152 S/W C IN
151 E/E C OUT
17 SEC DET H
16 W/EE
FROM Y/C
153 5V
FROM Y/C
148 6V
TO Y/C
162 SECAM 5V
154 SECAM 5V
158 TIE V OUT
156 PAL REC C
157 REC C OUT
FROM Y/C
160 C.SYNC
149 PB 5V
129 REG 12V
FROM Y/C
155 SECAM H
5
4
3
2
1
A
B
C
D
E
F
G

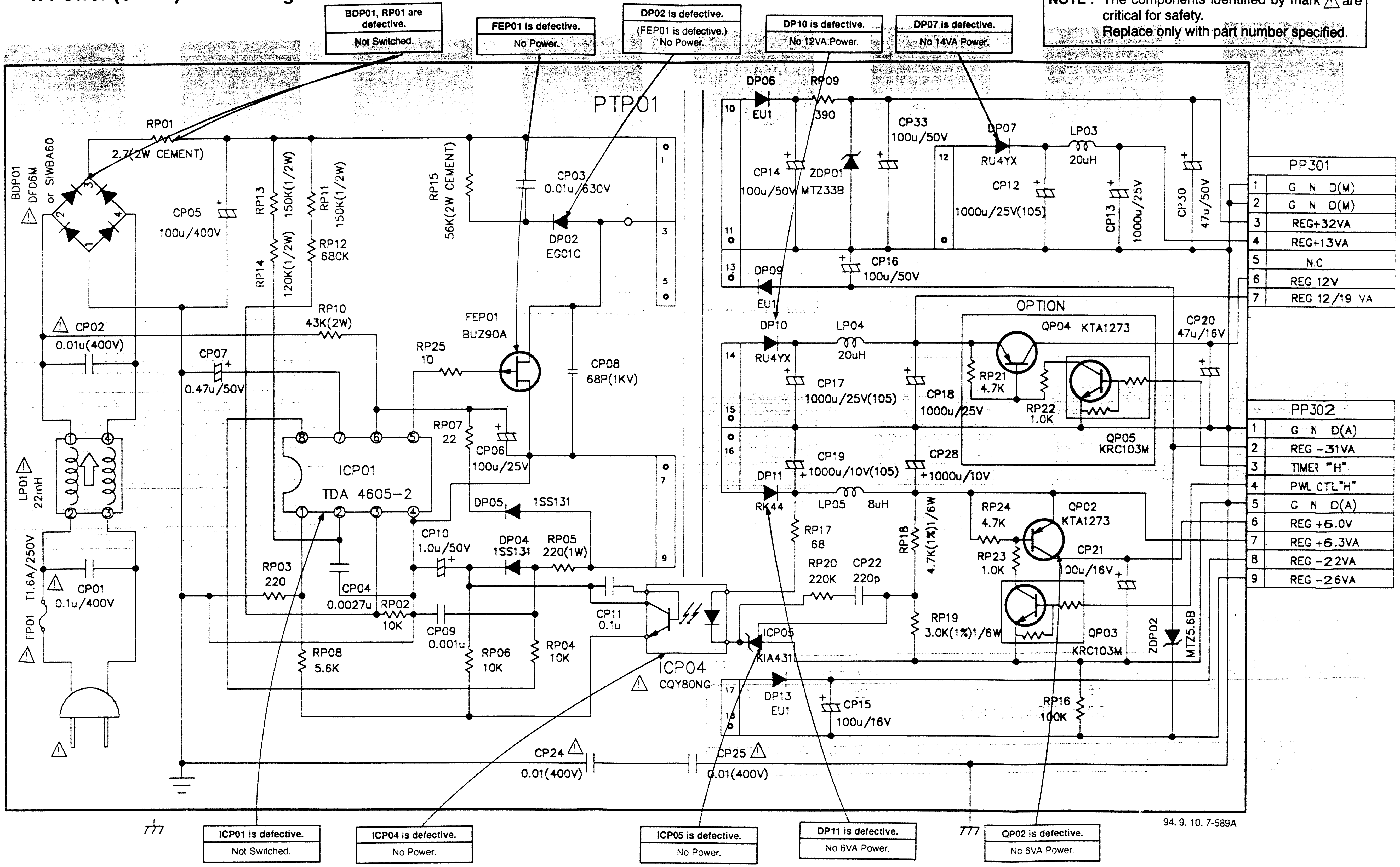
9. BS Block Diagram


5
4
3
2
1
A
B
C
D
E
F
G
P7B01 PB701
1 BS AFC "H" 1
2 BS AFC "L" 2
3 G.N.D 3
4 DATA2(BS) 4
5 CLK2(BS) 5
6 BS ENABLE 6
7 G.N.D 7
8 TIMER "H" 8
9 G.N.D 9
10 G.N.D 10
11 G.N.D 11
12 EXP3 ENABLE 12
TU702
LNB ①
②
AFC L ③
AFC H ④
SIG LEV ⑤
5V ⑥
BB OUT ⑦
⑧
⑨
TU MONI ⑩
32VA ⑪
②
SDA ⑬
SCL ⑭
ENA ⑮
HPF
AGC CONTROL
INVERT BUFFER
IC701
TDA6151
⑳ FBAS I/P
⑲ GAIN ADJ
⑱ SIF O/P
⑰ GND
⑯ BB O/P
⑮ VSUP
⑭ V-O/P
⑬ AV SEL
⑫ EXT V-I/P
⑪ EXY KEY PULSE
B
HP
B
-4dB
B
6dB
-12dB
H
L
M
+14dB
B
B
KEY PULSE GENERATOR & ENERGY DISPERSAL CLAMPING
① FBAS O/P
② DEEMP SELECT
③ MAC DEEMP
④ GND
⑤ PAL DEEMP
⑥ SYNC SEP
⑦ BB O/P
⑧ CLAMP LEVEL SEL
⑨ BB I/P
⑩ INT/EXT CLAMP SEL
DEEMPHASIS
5MHz LPF
6dB AMP
P7B02 PB702
1 G.N.D 1
2 BS VIDEO 2
3 BS "H" 3
4 6VA 4
5 32VA 5
6 12V (G) 6
7 12/19VA 7
8 12VA 8
9 BS SIF 9
10 G.N.D 10
BS ON/OFF S/W
LNC ON/OFF S/W
15VA REGULATOR
PROTECTION CIRCUIT
LNC CONTROL
GREEN POWER 5V
12VA REGULATOR
GREEN POWER 12V
IC706
TC4094BP
⑧ Vss
⑦ M/SUB Q4
⑥ PANDA 1 Q3
⑤ LNB CONT Q2
④ BS-H Q1
③ CLOCK
② DATA
① STROBE
⑨ QS
⑩ QS'
⑪ Q8
⑫ Q7
⑬ Q6
⑭ LNB ON/OFF Q5
⑮ OE
⑯ Vdd

CIRCUIT DIAGRAMS

1. Power (SMPS) Circuit Diagram

NOTE : The components identified by mark ⚠ are critical for safety.
Replace only with part number specified.



5
4
3
2
1
A
B
C
D
E
F
G
PTP01
RP01
2.7(2W CEMENT)
BDP01
DF06M
or SIWBA60
CP05
100u/400V
RP13
150K(1/2W)
RP11
150K(1/2W)
RP14
120K(1/2W)
RP12
680K
RP15
56K(2W CEMENT)
CP03
0.01u/630V
DP02
EG01C
FEP01
BUZ90A
CP08
68P(1KV)
CP02
0.01u(400V)
CP07
0.47u/50V
RP10
43K(2W)
RP25
10
LP01
22mH
ICP01
TDA 4605-2
RP07
22
CP06
100u/25V
DP05
1SS131
CP10
1.0u/50V
DP04
1SS131
RP05
220(1W)
FP01
T1.6A/250V
CP01
0.1u/400V
RP03
220
CP04
0.0027u
RP02
10K
CP09
0.001u
CP11
0.1u
RP08
5.6K
RP06
10K
RP04
10K
ICP04
CQY80NG
CP24
0.01(400V)
CP25
0.01(400V)
DP06
EU1
RP09
390
CP33
100u/50V
CP14
100u/50V
ZDP01
MTZ33B
DP07
RU4YX
LP03
20uH
CP12
1000u/25V(105)
CP13
1000u/25V
CP30
47u/50V
CP16
100u/50V
DP09
EU1
DP10
RU4YX
LP04
20uH
CP17
1000u/25V(105)
CP18
1000u/25V
OPTION
QP04 KTA1273
RP21
4.7K
RP22
1.0K
QP05
KRC103M
CP20
47u/16V
CP19
1000u/10V(105)
CP28
1000u/10V
DP11
RK44
LP05 8uH
RP17
68
RP18
4.7K(1%)1/6W
RP24
4.7K
QP02
KTA1273
RP23
1.0K
CP21
100u/16V
RP20
220K
CP22
220p
RP19
3.0K(1%)1/6W
ICP05
KIA431
QP03
KRC103M
ZDP02
MTZ5.6B
DP13
EU1
CP15
100u/16V
RP16
100K
PP301
1 GND(M)
2 GND(M)
3 REG+32VA
4 REG+13VA
5 N.C
6 REG 12V
7 REG 12/19 VA
PP302
1 GND(A)
2 REG -31VA
3 TIMER "H"
4 PWL CTL"H"
5 GND(A)
6 REG +6.0V
7 REG +6.3VA
8 REG -22VA
9 REG -26VA
94. 9. 10. 7-589A

BDP01, RP01 are defective.
Not Switched.

FEP01 is defective.
No Power.

DP02 is defective.
(FEP01 is defective.)
No Power.

DP10 is defective.
No 12VA Power.

DP07 is defective.
No 14VA Power.

ICP01 is defective.
Not Switched.

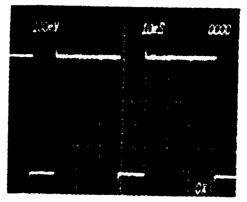
ICP04 is defective.
No Power.

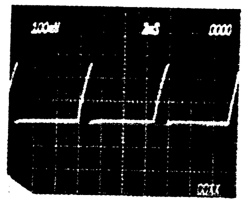
ICP05 is defective.
No Power.

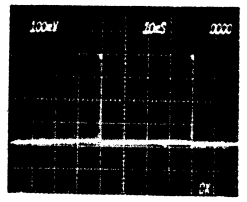
DP11 is defective.
No 6VA Power.

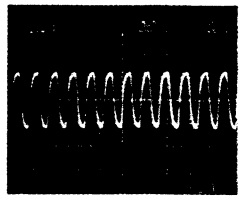
QP02 is defective.
No 6VA Power.

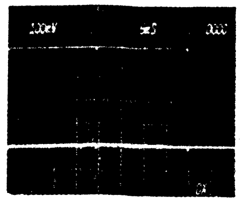
* Servo Waveform

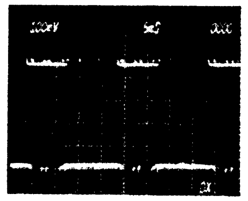
①

IC201 Pin ①
Tracking Trigger
(100mV/10msec)

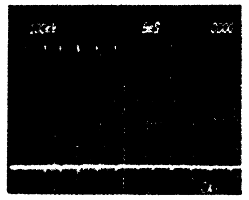
②

IC201 Pin ⑥
PG Mono-Multi
(100mV/2msec)

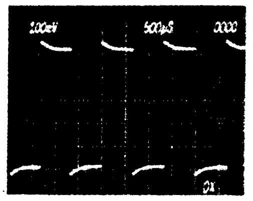
③

IC201 Pin ⑦ PG Input
(100mV/10msec)

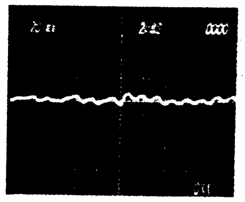
④

IC201 Pin ⑨ Drum
Frequency Generator
Input (100mV/2msec)

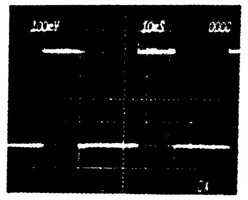
⑬

IC201 Pin ㊿ C-SYNC
Input terminal
(100mV/5msec)

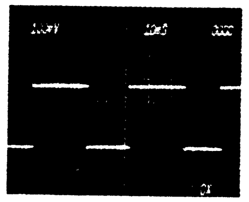
⑭

IC201 Pin (53)
Servo Data Input terminal

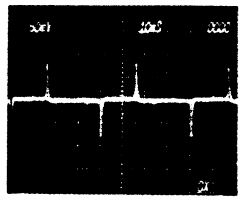
⑮

IC201 PIN (54) Servo Clock Input
terminal (100mV/5msec)

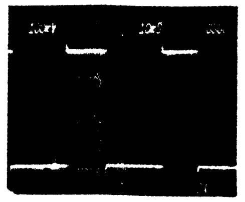
⑯

IC201 Pin (55) CFG (Capstan
Frequency Generator) Count
Down Output terminal
(100mV/500μ sec)

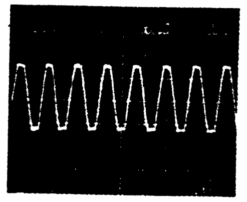
⑤

IC201 Pin ㉗ Capstan Control
(20mV/2msec)

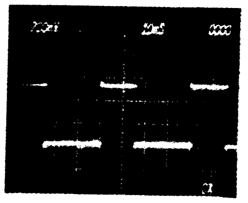
⑥

IC201 Pin ㉘
Record Control (-)
(100mV/10msec)

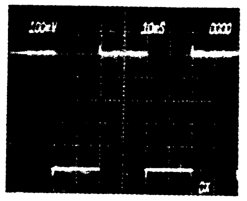
⑦

IC201 Pin ㉚
Record Control (+)
(100mV/10msec)

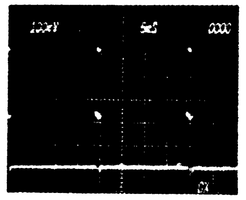
⑧

IC201 Pin ㉟
Playback Control Pulse
(50mV/10msec)

⑰

IC201 Pin (56) Control Count Down
Output terminal.
(100mV/10msec)

⑨

IC201 Pin ㊲
Capstan Frequency Generator
Input (100mV/500μ sec)

⑩

IC201 Pin ㊴ Control Clock
(200mV/10msec)

⑪

IC201 Pin ㊺
Video Head Switching
Pulse (100mV/10msec)

⑫

IC201 Pin ㊽ Vertical Pulse (VP)
(100mV/5msec)

* Servo TR Voltage Sheet

(PB/REC mode)

Port TR No.	Emitter	Collector	Base
Q201	4.99/4.98	1.18/1.17	5.19/5.16
Q202	4.99/4.99	1.17/1.16	5.19/5.16
Q203	4.99/4.99	2.64/2.63	5.20/5.17
Q204	0.00/0.0	2.64/2.63	0.03/0.03
Q205	0.00/0.0	4.99/4.98	0.00/0.0
Q206	0.00/0.0	0.53/0.0	0.00/4.89
Q207	0.91/0.91	3.35/3.34	1.51/1.51
Q208	2.49/2.49	2.40/2.40	0.00/0.0
Q209	0.54/0.54	1.27/1.25	1.13/1.13
Q210	0.54/0.55	4.98/4.97	0.88/0.88

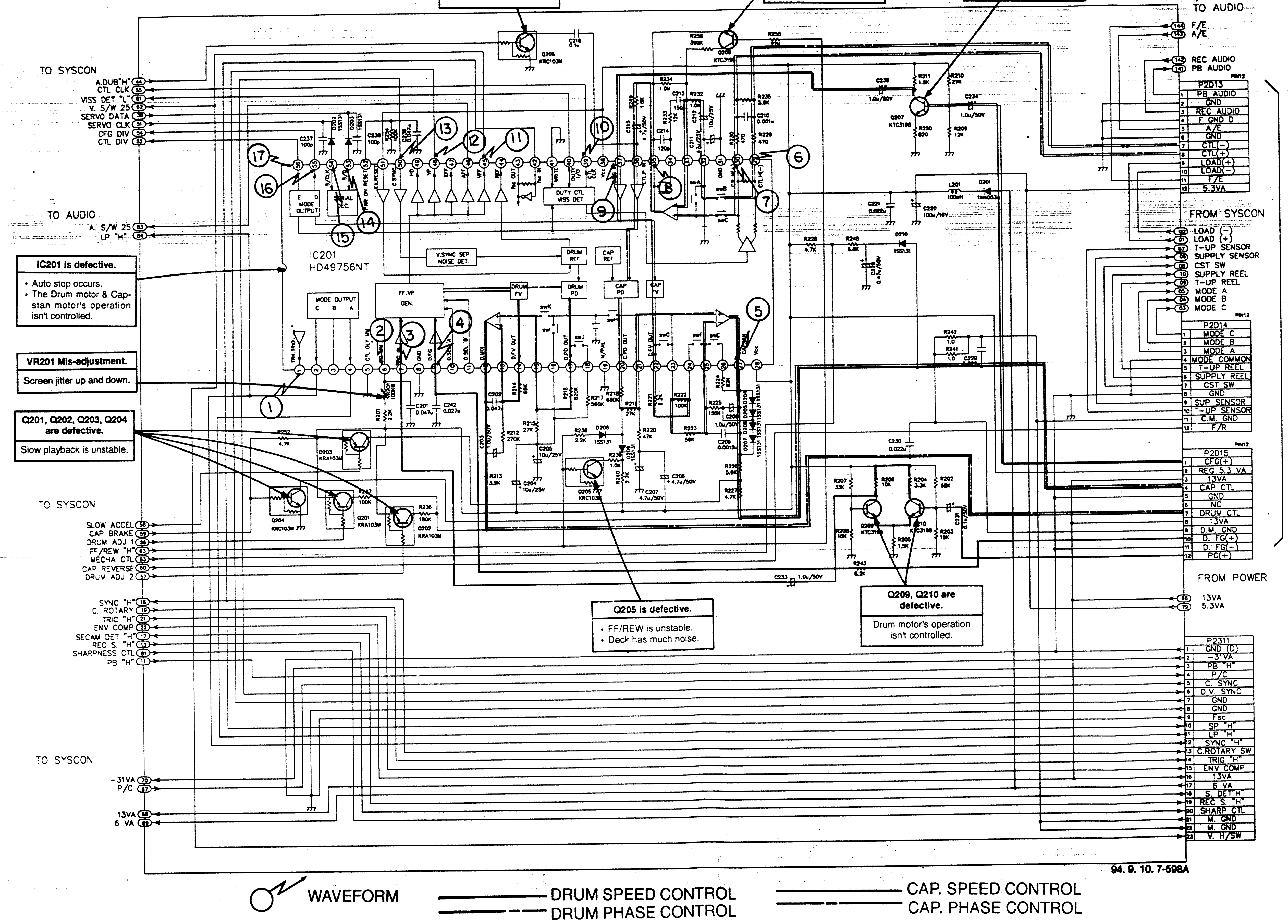
* Servo IC Voltage Sheet

PB (REC)

IC201 (HD49756NT)

1.99 (4.97)	2.51 (2.49)	0.88 (0.88)	1.23 (1.29)	3.73 (3.70)	5.01 (4.99)	0.50 (0.46)	0.02 (0.01)	0.05 (0.05)	2.50 (2.50)	2.50 (0.02)	2.50 (2.48)	2.56 (2.57)	2.56 (2.55)	2.54 (2.53)	0.00 (0.0)	5.00 (4.97)	2.00 (3.59)	5.02 (4.99)	2.62 (2.60)	2.51 (2.49)	2.51 (2.49)	2.51 (2.49)	2.51 (2.49)	2.51 (2.49)	0.00 (0.0)	2.51 (2.74)	2.51 (2.10)
	55					50					45					40					35					30	
1				5					10					15					20					25			
3.61 (3.60)	0.02 (0.02)	0.01 (0.01)	4.99 (4.95)	0.0 (0:0)	0.30 (0.30)	2.11 (2.10)	0.0 (0.0)	2.60 (2.59)	2.61 (2.6)	2.62 (2.6)	1.31 (1.29)	2.51 (2.49)	2.53 (2.51)	2.52 (2.51)	2.52 (2.50)	2.52 (2.53)	2.39 (2.37)	0.0 (0.0)	2.54 (2.52)	2.53 (2.51)	2.54 (2.51)	2.54 (2.51)	2.54 (2.51)	2.52 (2.51)	2.64 (2.60)	2.66 (2.63)	5.03 (4.99)

2. Servo Circuit Diagram


TO SYSCON
A.DUB"H" 44
CTL CLK 55
VISS DET "L" 81
V. S/W 25 82
SERVO DATA 36
SERVO CLK 51
CFG DIV 54
CTL DIV 52
TO AUDIO
A. S/W 25 83
LP "H" 84
IC201
HD49756NT
TO SYSCON
SLOW ACCEL 58
CAP BRAKE 59
DRUM ADJ 1 56
FF/REW "H" 63
MECHA CTL 53
CAP REVERSE 60
DRUM ADJ 2 57
SYNC "H" 18
C. ROTARY 19
TRIC "H" 21
ENV COMP 22
SECAM DET "H" 17
REC S. "H" 13
SHARPNESS CTL 81
PB "H" 11
TO SYSCON
-31VA 70
P/C 87
13VA 68
6 VA 69
TO AUDIO
144 F/E
143 A/E
142 REC AUDIO
141 PB AUDIO
P2D13
1 PB AUDIO
2 GND
3 REC AUDIO
4 F GND D
5 A/E
6 GND
7 CTL(-)
8 CTL(+)
9 LOAD(+)
10 LOAD(-)
11 F/E
12 5.3VA
FROM SYSCON
92 LOAD (-)
91 LOAD (+)
97 T-UP SENSOR
96 SUPPLY SENSOR
98 CST SW
10 SUPPLY REEL
99 T-UP REEL
65 MODE A
64 MODE B
63 MODE C
TO DECK
P2D14
1 MODE C
2 MODE B
3 MODE A
4 MODE COMMON
5 T-UP REEL
6 SUPPLY REEL
7 CST SW
8 GND
9 SUP SENSOR
10 T-UP SENSOR
11 C.M. GND
12 F/R
P2D15
1 CFG(+)
2 REG 5.3 VA
3 13VA
4 CAP CTL
5 GND
6 NC
7 DRUM CTL
8 13VA
9 D.M. GND
10 D. FG(+)
11 D. FG(-)
12 PG(+)
FROM POWER
68 13VA
79 5.3VA
P2311
1 GND (D)
2 -31VA
3 PB "H"
4 P/C
5 C. SYNC
6 D.V. SYNC
7 GND
8 GND
9 Fsc
10 SP "H"
11 LP "H"
12 SYNC "H"
13 C.ROTARY SW
14 TRIG "H"
15 ENV COMP
16 13VA
17 6 VA
18 S. DET"H"
19 REC S. "H"
20 SHARP CTL
21 M. GND
22 M. GND
23 V. H/SW
Q206 KRC103M
Q208 KTC3198
Q207 KTC3198
Q201 KRA103M
Q202 KRA103M
Q203 KRA103M
Q204 KRC103M
Q205 KRC103M
Q209 KTC3198
Q210 KTC3198
L201 100uH
D201 1N4003
D210 1SS131
R201 22K
VR201 100KB
MODE OUTPUT C B A
FF.VP GEN.
DRUM FV
DRUM PD
CAP PD
CAP FV
DRUM REF
CAP REF
V.SYNC SEP. NOISE DET.
DUTY CTL VISS DET
E D MODE OUTPUT
SERIAL DEC.
①
②
③
④
⑤
⑥
⑦
⑧
⑨
⑩
⑪
⑫
⑬
⑭
⑮
⑯
⑰
94. 9. 10. 7-598A
WAVEFORM
DRUM SPEED CONTROL
DRUM PHASE CONTROL
CAP. SPEED CONTROL
CAP. PHASE CONTROL
A
B
C
D
E
F
G
1
2
3
4
5

Q206 is defective.
A.Dub mode is unstable.

Q208 is defective.
VISS mode operation is unstable.

Q207 is defective.
Capstan motor's operation isn't controlled.

IC201 is defective.
- Auto stop occurs.
- The Drum motor & Capstan motor's operation isn't controlled.

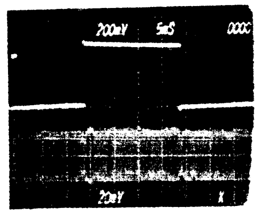
VR201 Mis-adjustment.
Screen jitter up and down.

Q201, Q202, Q203, Q204 are defective.
Slow playback is unstable.

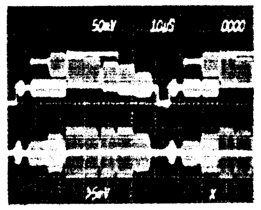
Q205 is defective.
- FF/REW is unstable.
- Deck has much noise.

Q209, Q210 are defective.
Drum motor's operation isn't controlled.

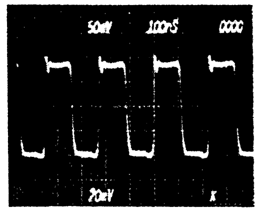
* Y/C Waveform (When taking a photograph of waveform, set probe of oscilloscope to 10:1)

①


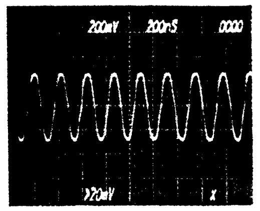
IC301 Pin ①
Playback RF (SP mode)
(20mV/5msec)

②


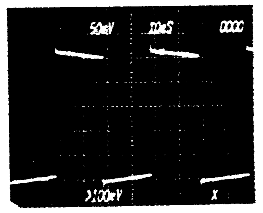
IC301 Pin ㉕
Playback Color
(5mV/10µ sec)

③


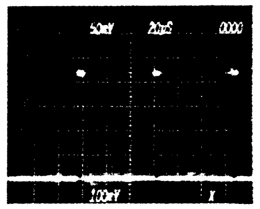
IC301 Pin ㉞
Playback Mode : Fsc
Oscillation (20mV/100nsec)

③


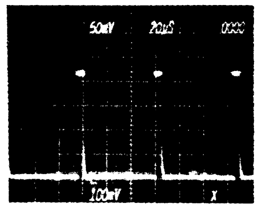
IC301 Pin ㉞
Record Mode:Fsc
Oscillation (20mV/200nsec)

④


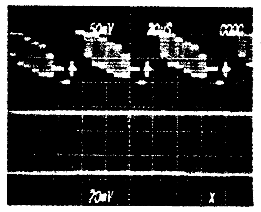
IC303 Pin ⑱
S/W 25 (100mV/10msec)

⑤


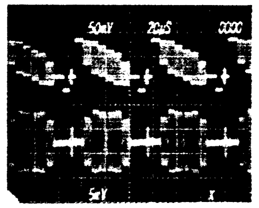
IC301 Pin ⑮ C.SYNC
(100mV/20µ sec)

⑥


IC301 Pin ㊵
B.G.P Out terminal
(100mV/20µ sec)

⑦


IC301 Pin ②
Record FM signal
(20mV/20µ sec)

⑧


IC303 Pin ④
Record Color Signal
(5mV/20µ sec)

* Y/C TR Voltage Sheet

(PB/REC mode)

Port / TR No.	Emitter	Collector	Base
Q305	3.45/2.91	0.0/0.0	2.86/2.32
Q309	3.47/0.0	6.0/0.0	4.09/0.0
Q312	0.0/0.0	0.01/6.07	3.62/0.0
Q313	6.12/6.08	6.05/0.0	5.32/6.08
Q314	2.23/2.34	5.18/5.15	2.82/2.93
Q315	6.12/6.06	6.09/6.03	0.0/0.0
Q316	0.0/0.0	0.0/0.0	4.45/4.45
Q317	2.26/2.27	6.09/6.03	2.81/2.81
Q318	2.28/2.25	6.11/6.05	0.0/0.0
Q319	6.12/6.07	6.11/6.05	2.81/2.81
Q320	0.0/0.0	2.82/2.80	0.0/0.0
Q321	0.0/0.0	0.0/0.0	2.51/2.51
Q322	option		
Q323	0.93/0.0	4.28/0.0	1.54/0.0
Q324	5.46/5.46	12.87/12.89	6.04/6.04
Q325	option		
Q326	0.0/0.0	0.0/0.0	4.77/4.77
Q327	0.0/0.0	0.0/0.0	0.09/0.10
Q3A1	0.0/0.0	4.94/4.91	0.05/0.04
Q3A2	0.0/0.0	0.0/2.30	5.15/0.0
Q3A3	option		

* Y/C IC Voltage Sheet

PB (REC)

IC301 (LA7439)

			45					40					35					30					25
0.00 (0.0)	1.60 (1.74)	0.00 (0.01)	2.06 (2.05)	3.36 (2.49)	3.05 (3.02)	3.94 (3.02)	0.00 (0.0)	0.50 (0.49)	5.18 (5.15)	0.00 (0.0)	0.00 (0.0)	0.00 (0.0)	2.03 (2.05)	2.83 (2.96)	4.09 (4.09)	0.20 (0.19)	2.63 (0.02)	0.08 (0.06)	1.96 (1.94)	0.11 (0.1)	2.61 (2.58)	0.00 (0.0)	2.66 (2.64)

1				5					10					15					20				24
3.69 (3.07)	3.77 (3.10)	4.21 (4.20)	2.88 (2.31)	3.12 (2.99)	4.66 (2.26)	4.66 (2.26)	3.25 (3.24)	2.55 (2.53)	1.68 (1.44)	2.09 (2.08)	2.69 (2.68)	3.93 (3.02)	5.16 (5.15)	0.50 (0.47)	3.14 (3.14)	1.79 (1.98)	2.26 (2.28)	2.17 (2.16)	0.05 (0.05)	1.11 (1.14)	2.14 (2.25)	2.61 (2.59)	0.18 (0.17)

PB (REC)

IC303 (LC89970)

		20					15			
0.0 (0.0)	1.30 (1.29)	0.0 (0.0)	5.14 (5.10)	8.96 (8.84)	5.24 (5.20)	0.0 (0.0)	5.24 (5.20)	1.97 (2.02)	1.97 (2.02)	0.0 (0.0)

1				5					10	
0.0 (0.0)	2.33 (2.29)	5.24 (5.20)	2.33 (2.29)	0.0 (0.0)	2.27 (2.31)	0.0 (0.0)	1.07 (1.12)	0.0 (0.0)	2.31 (2.29)	1.14 (1.12)

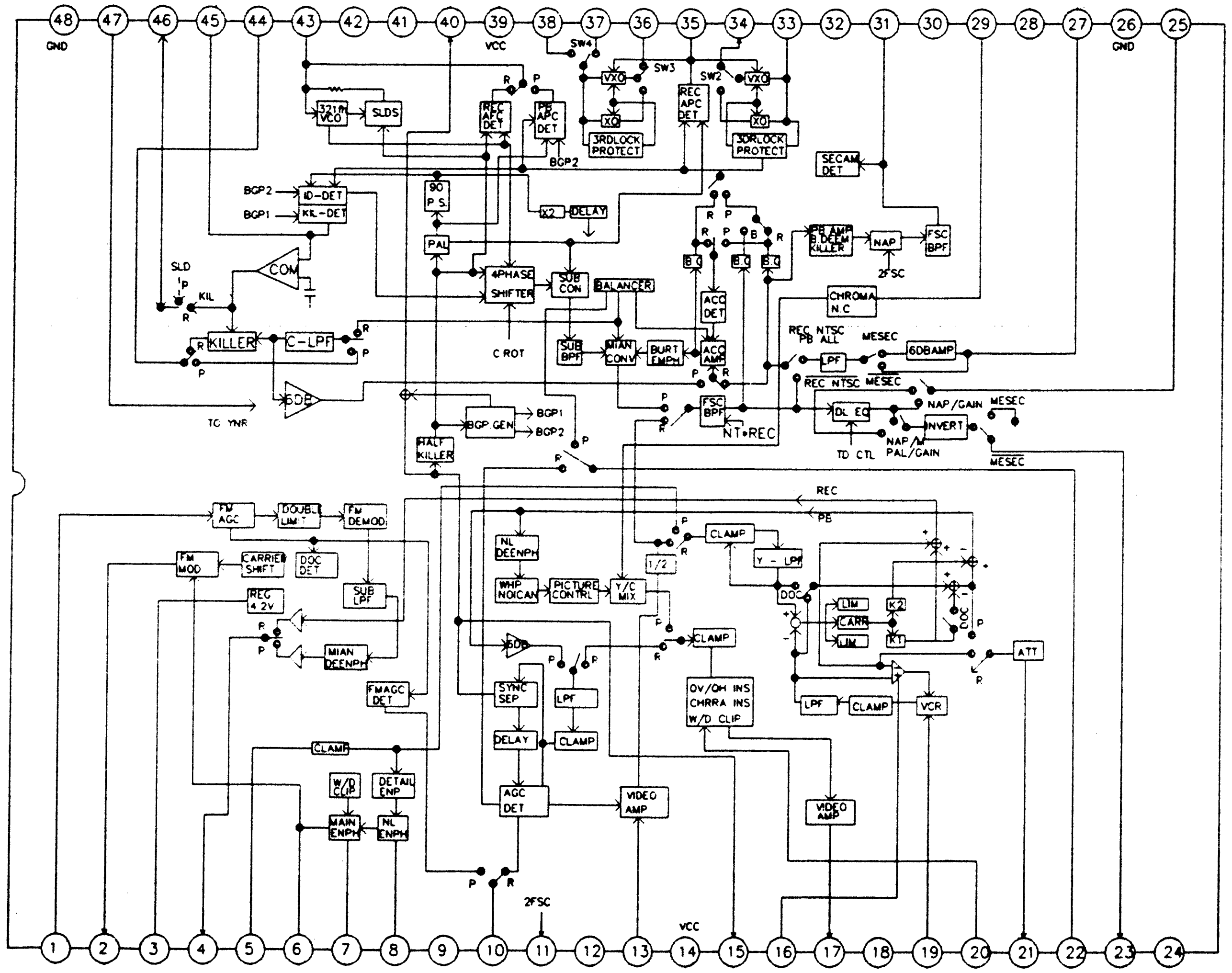
PB (REC)

IC3A1 (BA7025L)

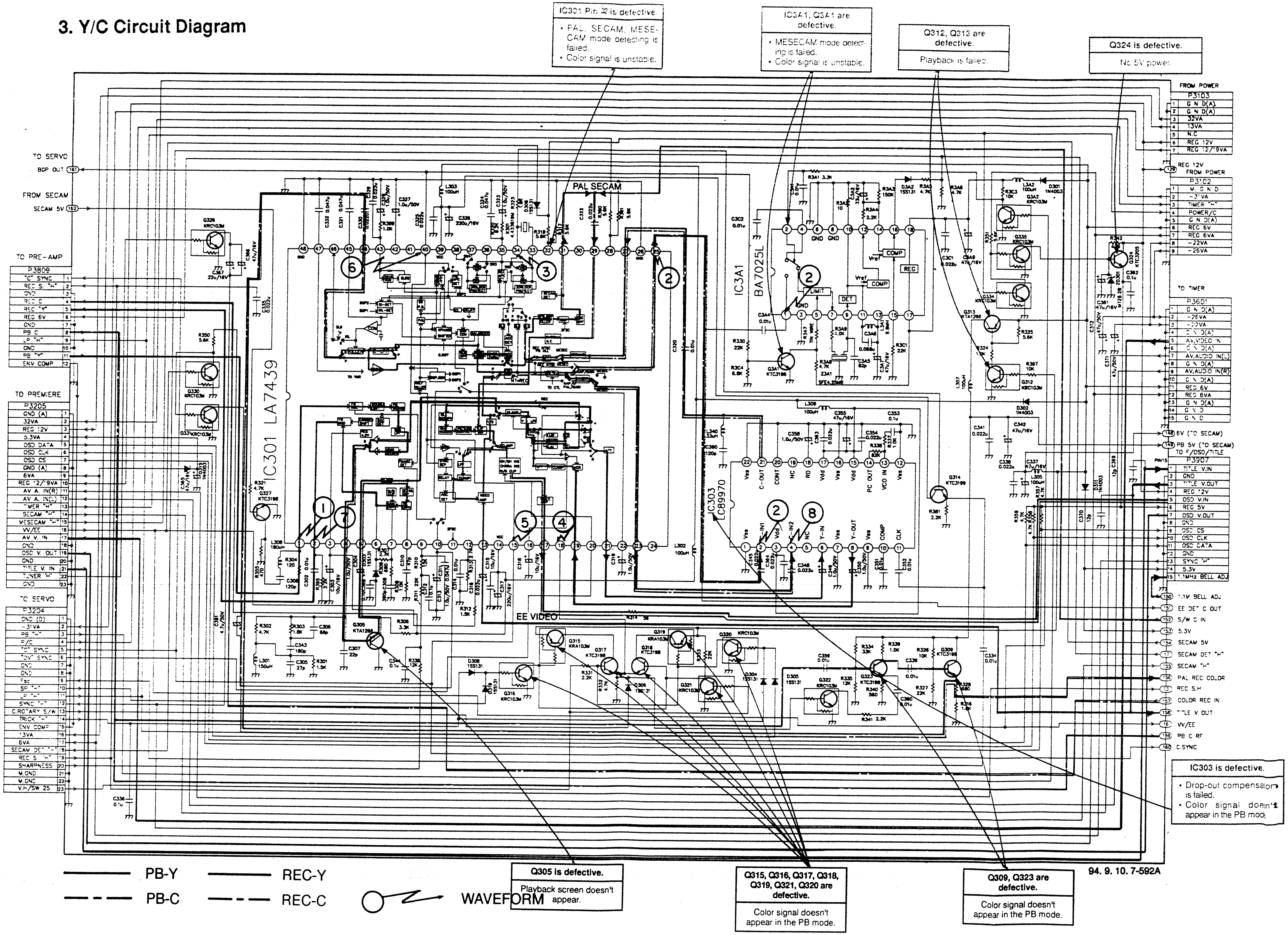
				10				
0.0 (1.27)	4.06 (4.04)	0.0 (0.0)	0.00 (0.0)	0.0 (0.0)	0.0 (0.0)	0.0 (0.0)	0.0 (0.0)	5.46 (5.42)

1		5					15	
4.06 (4.04)	0.0 (0.0)	4.95 (4.91)	4.85 (4.81)	3.27 (3.23)	4.0 (4.25)	4.0 (4.24)	0.0 (0.0)	5.46 (5.42)

* IC301 (LA7439) Block Diagram


48
47
46
45
44
43
42
41
40
39
38
37
36
35
34
33
32
31
30
29
28
27
26
25
GND
VCC
SW4
SW3
SW2
GND
321fH VCO
SLDS
REC APC DET
PB APC DET
BGP2
VXO
XO
3RDLOCK PROTECT
REC APC DET
VXO
XO
3ORLOCK PROTECT
SECAM DET
BGP2
BGP1
ID-DET
KIL-DET
90 P.S.
X2
DELAY
PAL
SLD
KIL
COM
4PHASE SHIFTER
SUB CON
BALANCER
B.G
ACC DET
PB AMP B.DEEM KILLER
NAP
FSC BPF
2FSC
CHROMA N.C
KILLER
C-LPF
C ROT
SUB BPF
MIAN CONV
BURT EMPH
ACC AMP
REC NTSC
PB ALL
MESEC
LPF
6DBAMP
REC NTSC
6DB
TC YNR
BGP GEN
BGP1
BGP2
HALF KILLER
FSC BPF
NT•REC
DL EQ
NAP/GAIN
INVERT
TD CTL
NAP/M PAL/GAIN
MESEC
REC
PB
FM AGC
DOUBLE LIMIT
FM DEMOD
FM MOD
CARRIER SHIFT
DOC DET
SUB LPF
REG 4.2V
MIAN DEENPH
NL DEENPH
WHP NOICAN
PICTURE CONTRL
Y/C MIX
1/2
CLAMP
Y - LPF
DOC
LIM
CARR
K2
K1
ATT
6DB
SYNC SEP
LPF
DELAY
CLAMP
FMAGC DET
OV/OH INS
CHRRA INS
W/D CLIP
LPF
CLAMP
VCR
W/D CLIP
DETAIL ENP
MAIN ENPH
NL ENPH
AGC DET
VIDEO AMP
VIDEO AMP
2FSC
VCC
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24

3. Y/C Circuit Diagram


IC301 Pin 32 is defective.
- PAL, SECAM, MESECAM mode detecting is failed.
- Color signal is unstable.

IC3A1, Q3A1 are defective.
- MESECAM mode detecting is failed.
- Color signal is unstable.

Q312, Q313 are defective.
Playback is failed.

Q324 is defective.
No 5V power.

IC303 is defective.
- Drop-out compensation is failed.
- Color signal doesn't appear in the PB mode.

Q305 is defective.
Playback screen doesn't appear.

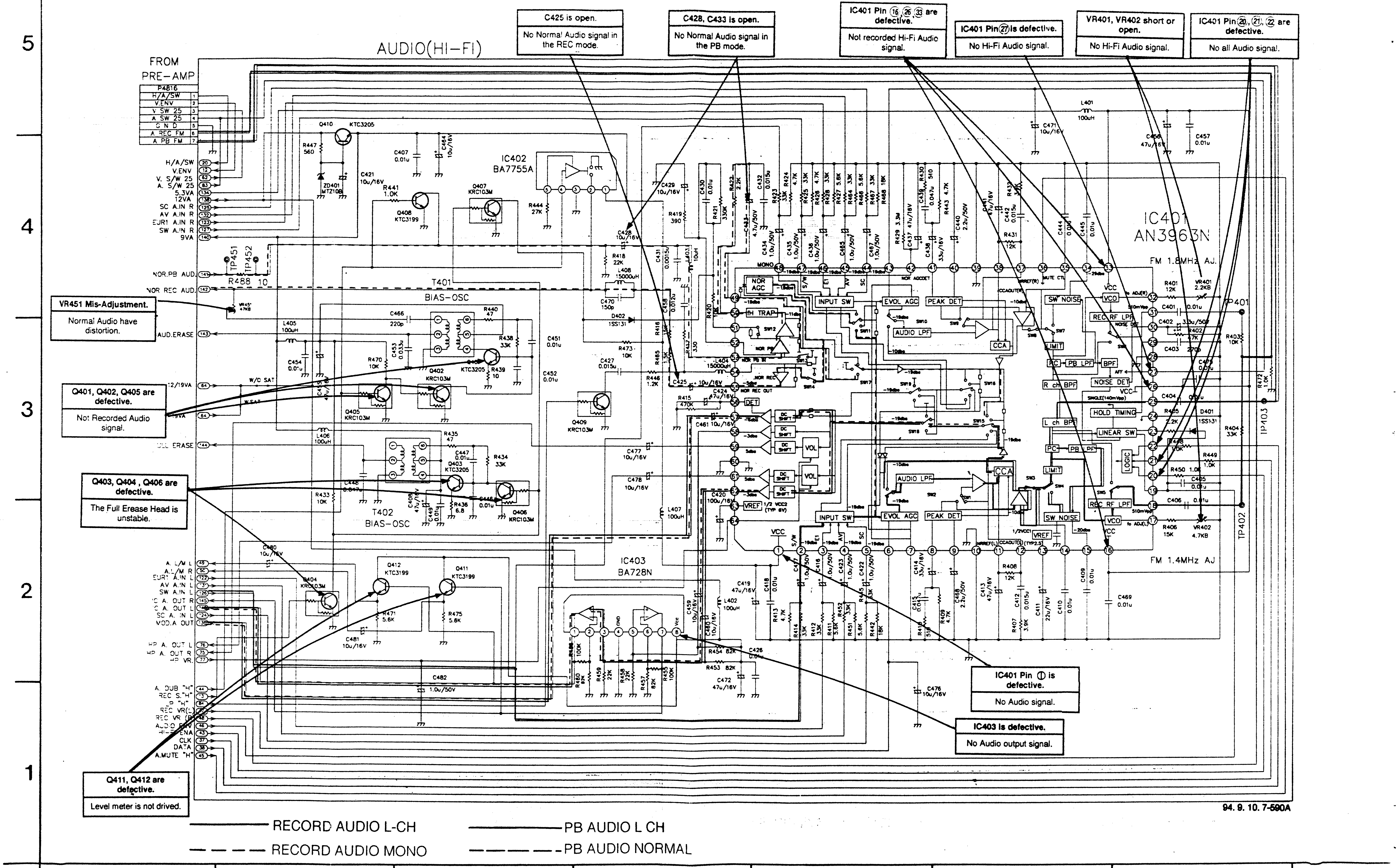
Q315, Q316, Q317, Q318, Q319, Q321, Q320 are defective.
Color signal doesn't appear in the PB mode.

Q309, Q323 are defective.
Color signal doesn't appear in the PB mode.

94. 9. 10. 7-592A

5
4
3
2
1
A
B
C
D
E
F
G
TO SERVO
BGP OUT 161
FROM SECAM
SECAM 5V 162
TO PRE-AMP
P3809
1 "C" SYNC
2 REC S. "H"
3 GND
4 REC C
5 REC "Y"
6 REG 6V
7 GND
8 PB C
9 LP "H"
10 GND
11 PB "Y"
12 ENV COMP
TO PREMIERE
P3205
1 GND (A)
2 32VA
3 REG 12V
4 5.3VA
5 OSD DATA
6 OSD CLK
7 OSD CS
8 GND (A)
9 6VA
10 REG 12/19VA
11 AV A. IN(R)
12 AV A. IN(L)
13 TIMER "H"
14 SECAM "H"
15 MESECAM "H"
16 W/EE
17 AV V. IN
18 GND
19 OSD V. OUT
20 GND
21 TITLE V. IN
22 TUNER "H"
23 GND
TO SERVO
P3204
1 GND (D)
2 -31VA
3 PB "H"
4 P/C
5 "C" SYNC
6 "DV" SYNC
7 GND
8 GND
9 Fsc
10 SP "H"
11 LP "H"
12 SYNC "H"
13 C.ROTARY S/W
14 TRICK "H"
15 ENV COMP
16 13VA
17 6VA
18 SECAM DET "H"
19 REC S. "H"
20 SHARPNESS
21 M.GND
22 M.GND
23 V.H/SW 25
FROM POWER
P3103
1 G N D(A)
2 G N D(A)
3 32VA
4 13VA
5 N.C
6 REG 12V
7 REG 12/19VA
129 REG 12V
FROM POWER
P3102
1 M. G N D
2 -31VA
3 TIMER "H"
4 POWER/C
5 G N D(A)
6 REG 6V
7 REG 6VA
8 -22VA
9 -26VA
TO TIMER
P3601
1 G N D(A)
2 -26VA
3 -22VA
4 G N D(A)
5 AV.VIDEO IN
6 G N D(A)
7 AV.AUDIO IN(L)
8 G N D(A)
9 AV.AUDIO IN(R)
10 G N D(A)
11 REG 6V
12 REG 6VA
13 G N D(A)
14 G N D
15 G N D
148 6V (TO SECAM)
149 PB 5V (TO SECAM)
TO F/OSD/TITLE
PIN15
P3907
1 TITLE V.IN
2 GND
3 TITLE V.OUT
4 REG 12V
5 OSD V.IN
6 REG 5V
7 OSD V.OUT
8 GND
9 OSD CS
10 OSD CLK
11 OSD DATA
12 GND
13 SYNC "H"
14 5.3V
15 1.1MHz BELL ADJ
150 1.1M BELL ADJ
151 EE DET C OUT
152 S/W C IN
153 5.3V
154 SECAM 5V
17 SECAM DET "H"
155 SECAM "H"
156 PAL REC COLOR
13 REC S.H
157 COLOR REC IN
158 TITLE V OUT
16 W/EE
159 PB C RF
160 C.SYNC
IC301 LA7439
IC3A1 BA7025L
IC303 LC89970
PAL SECAM
EE VIDEO
Q326 KRC103M
Q330 KRC103M
Q331 KRC103M
Q327 KTC3198
Q305 KTA1266
Q316 KRC103M
Q315 KRA103M
Q317 KTC3198
Q318 KTC3198
Q319 KRA103M
Q320 KRC103M
Q321 KRC103M
Q322 KRC103M
Q323 KTC3198
Q309 KTC3198
Q314 KTC3199
Q3A1 KTC3198
Q313 KTA1266
Q312 KRC103M
Q324 KTC3205
Q3A2 KRC103M
Q335 KRC103M
Q334 KRC103M
① ② ③ ④ ⑤ ⑥ ⑦ ⑧
PB-Y
REC-Y
PB-C
REC-C
WAVEFORM

4. Audio Circuit Diagram


AUDIO(HI-FI)
FROM PRE-AMP
P4816
H/A/SW
V.ENV
V.SW 25
A.SW 25
GND
A.REC FM
A.PB FM
IC401
AN3963N
FM 1.8MHz AJ.
FM 1.4MHz AJ
IC402
BA7755A
IC403
BA728N
T401
BIAS-OSC
T402
BIAS-OSC
TP401
TP402
TP403
TP451
TP452
NOR.PB AUD.
NOR REC AUD.
AUD.ERASE
FULL ERASE
5
4
3
2
1
A
B
C
D
E
F
G
H

C425 is open.
No Normal Audio signal in the REC mode.

C428, C433 is open.
No Normal Audio signal in the PB mode.

IC401 Pin ⑯, ㉖, ㉝ are defective.
Not recorded Hi-Fi Audio signal.

IC401 Pin ㉗ is defective.
No Hi-Fi Audio signal.

VR401, VR402 short or open.
No Hi-Fi Audio signal.

IC401 Pin ⑳, ㉑, ㉒ are defective.
No all Audio signal.

VR451 Mis-Adjustment.
Normal Audio have distortion.

Q401, Q402, Q405 are defective.
Not Recorded Audio signal.

Q403, Q404 , Q406 are defective.
The Full Erease Head is unstable.

IC401 Pin ① is defective.
No Audio signal.

IC403 is defective.
No Audio output signal.

Q411, Q412 are defective.
Level meter is not drived.

94. 9. 10. 7-590A

——— RECORD AUDIO L-CH

– – – – RECORD AUDIO MONO

——— PB AUDIO L CH

– – – – – – PB AUDIO NORMAL

* Audio TR Voltage Sheet

(PB/REC mode)

Port / TR No.	Emitter	Collector	Base
Q401	0.00/0.40	9.14/9.12	0.00/0.78
Q402	0.00/0.0	0.00/0.78	6.10/0.0
Q403	3.19/0.3	4.30/9.12	4.30/0.58
Q404	0.00/0.0	4.81/0.02	0.35/5.19
Q405	0.00/0.0	6.10/0.01	0.00/4.89
Q406	0.00/0.0	0.01/0.58	4.81/0.02
Q407	0.00/0.0	0.01/5.29	4.81/0.02
Q408	0.00/0.0	0.00/0.01	0.00/0.74
Q409	0.00/0.0	0.00/0.0	0.00/0.0
Q410	9.14/9.82	13.07/13.11	9.75/9.24
Q411	5.59/5.62	13.07/13.10	6.19/6.19
Q412	5.52/5.56	13.07/13.09	6.11/6.12
Q4A1	4.98/4.99	4.79/4.80	4.18/4.20
Q4A2	0.00/0.0	0.03/0.03	4.71/4.72
Q4A4	0.00/0.0	0.00/0.02	4.71/4.71
Q4A5	0.00/0.0	4.11/0.0	0.00/0.0

* Audio IC Voltage Sheet

IC402 (BA7755A)

1				5
9.21	0.00	0.00	0.00	5.62

IC403 (BA728N)

1				5			
6.14	2.78	2.77	0.00	2.79	2.79	6.21	13.15

PB (REC)

IC401 (AN3963N)

			45					40					35		
2.52 (2.57)	2.52 (2.57)	2.52 (2.57)	2.52 (2.57)	2.52 (2.57)	3.51 (3.50)	0.14 (0.0)	2.39 (2.60)	2.04 (1.63)	0.00 (0.0)	2.39 (2.60)	2.39 (2.60)	0.00 (0.0)	2.39 (2.60)	2.50 (2.56)	5.03 (5.10)

2.53 (2.50)	
2.83 (0.62)	50
2.56 (0.79)	
2.48 (4.60)	
2.47 (2.58)	
2.53 (2.58)	
4.79 (4.82)	55
0.00 (0.0)	
4.88 (4.94)	
4.82 (4.89)	
4.85 (4.89)	
0.00 (0.0)	60
4.66 (4.70)	
4.74 (4.80)	
4.87 (4.91)	
3.17 (3.15)	64

	2.35 (2.42)
	1.99 (2.16)
30	1.87 (1.87)
	0.06 (0.24)
	0.00 (0.0)
	0.00 (0.02)
	5.03 (5.10)
25	2.52 (0.82)
	0.00 (0.0)
	4.90 (5.03)
	0.70 (0.85)
	0.00 (0.79)
20	0.49 (0.47)
	3.92 (0.08)
	1.99 (2.16)
	2.35 (2.42)

1				5					10					15	
9.16 (9.20)	2.51 (2.57)	2.52 (2.57)	2.52 (2.57)	2.52 (2.57)	3.52 (3.51)	0.00 (0.0)	2.38 (2.60)	1.56 (1.56)	0.00 (0.0)	2.38 (2.60)	2.38 (2.60)	2.53 (2.58)	2.37 (2.60)	2.48 (2.56)	5.03 (5.10)

• System Control TR Voltage Sheet(PB/REC mode)

TR No. \ Port	Emitter	Collector	Base
Q501	0.00/0.00	0.00/0.00	5.21/5.21
Q502	0.00/0.00	pulse	pulse
Q503	0.00/0.00	pulse	pulse
Q504	0.00/0.00	0.00/0.00	0.00/0.00
Q505	0.00/0.00	0.00/0.00	0.00/0.00
Q506	0.00/0.00	2.22/2.22	0.37/0.37
Q507	2.83/1.88	2.82/1.88	2.24/1.29
Q550	0.00/0.00	0.06/0.06	4.36/4.36
Q551	12.90/12.90	12.89/12.89	12.13/12.13
Q552	11.94/11.94	0.00/0.00	12.35/12.35
Q553	0.00/0.00	0.62/0.62	0.00/0.00
Q554	4.93/4.93	0.00/0.00	4.88/4.88
Q555	0.00/0.00	0.02/0.02	4.85/4.85

• System Control IC Voltage Sheet

IC503 (PST523G)

PB (REC)

1		
5.26 (5.22)	0.00 (0.0)	5.26 (5.22)

IC504 (GL7445)

PB (REC)

1				5					10
0.00 (0.16)	0.52 (0.50)	0.77 (0.78)	0.48 (0.72)	1.76 (1.77)	1.77 (1.77)	12.62 12.61	12.62 12.62	0.78 (0.79)	0.52 (0.5)

IC505 (NM24C16N)

PB

4.95	0.0	0.21	0.13
			5
1			
0.0	0.0	0.0	0.0

IC507 (TC4094BP)

PB (REC)

4.95 (4.94)	4.95 (4.94)	4.95 (0.0)	4.89 (4.88)	0.00 (0.0)	0.00 (0.0)	1.17 (2.76)	1.17 (2.73)
	15					10	
1				5			
0.00 (0.0)	0.73 (0.83)	0.73 (0.71)	4.87 (4.86)	0.00 (0.0)	0.00 (0.0)	0.00 (0.0)	0.00 (0.0)

IC506 (GD4066B)

PB

4.95	0.02	0.02	0.13	0.11	0.14	0.14
				10		
1				5		
0.32	0.09	0.32	0.32	4.87	4.87	0.00

IC501 (M38184M8)

PB (REC)

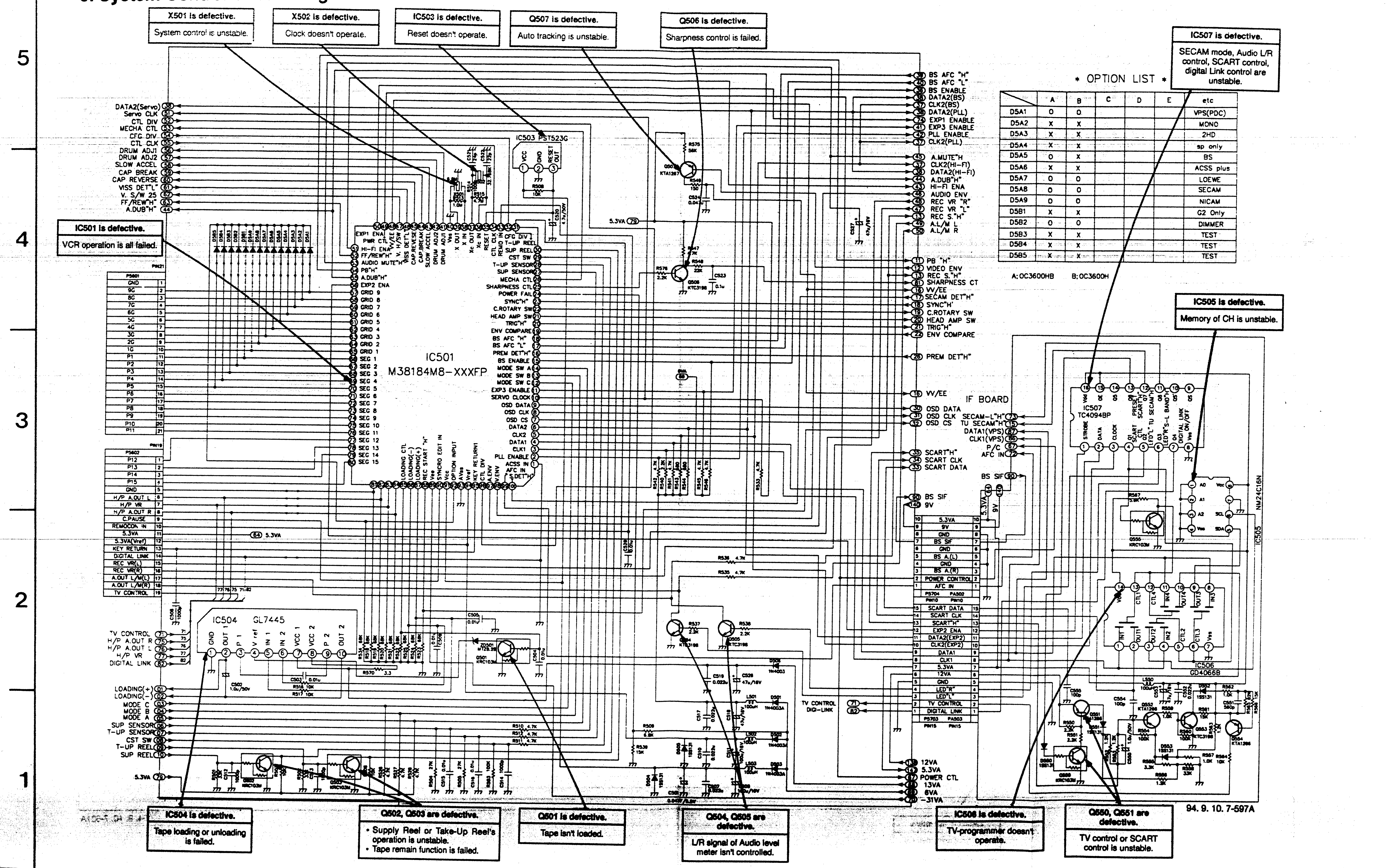
0.00 (0.0)	0.00 (5.15)	0.00 (0.0)	2.50 (2.51)	4.99 (4.97)	0.00 (0.0)	0.03 (0.03)	5.22 (5.17)	5.22 (5.17)	5.22 (5.17)	0.00 (0.0)	2.53 (2.51)	2.39 (2.37)	2.59 (2.58)	2.36 (2.34)	5.26 (5.22)	2.00 (3.62)	4.96 (4.91)	2.50 (2.50)	pulse (pulse)
50					45					40					35				

0.50 (0.5)	50
0.00 (0.0)	
0.00 (0.0)	
5.23 (0.0)	
0.00 (4.90)	55
0.00 (0.0)	
-27.6 (-27.6)	
-27.6 (-27.5)	
0.00 (-27.5)	
-27.6 (-27.5)	60
-27.6 (-27.5)	
-27.6 (-27.6)	
-27.6 (-27.6)	
-27.6 (-27.6)	
-27.6 (-27.5)	65
-24.0 (-13.5)	
-31.0 (-27.5)	
-31.0 (-27.5)	
-31.0 (-27.5)	
-31.0 (-20.4)	70
-24.0 (-13.5)	
-17.1 (-24.0)	
-17.1 (-17.1)	
-31.0 (-17.0)	
-31.0 (-24.0)	75
-31.0 (-31.0)	
-31.0 (-31.0)	
-31.0 (-31.0)	
-31.0 (-20.5)	
-20.5 (-23.9)	80

30	pulse (pulse)
	4.99 (0.0)
	0.02 (0.03)
	0.06 (0.0)
	5.25 (5.21)
25	2.60 (2.63)
	4.09 (4.08)
	4.75 (4.72)
	0.05 (0.05)
	0.05 (0.05)
20	0.05 (0.05)
	0.49 (0.14)
	4.52 (4.52)
	0.28 (0.28)
	0.00 (0.0)
15	0.50 (0.49)
	0.50 (0.0)
	0.00 (0.0)
	0.00 (0.0)
	0.12 (0.12)
10	0.33 (0.34)
	5.45 (5.42)
	5.42 (5.39)
	4.00 (0.0)
	0.70 (0.0)
5	0.00 (0.0)
	0.13 (0.17)
	0.17 (0.17)
	0.34 (0.0)
1	0.64 (0.19)

80				85					90					95					100
-0.00 (0.0)	-0.00 (0.0)	0.00 (0.0)	0.00 (0.0)	5.25 (5.20)	5.25 (5.20)	5.25 (5.20)	0.36 (0.0)	-31.0 (-31.0)	0.50 (0.5)	5.27 (5.22)	2.15 (0.0)	-0.00 (0.0)	5.54 (5.52)	5.53 (5.21)	1.97 (4.97)	3.93 (0.09)	2.96 (1.87)	2.41 (1.27)	0.00 (0.0)

5. System Control Circuit Diagram


IC501
M38184M8-XXXFP
IC503 PST523G
IC504 GL7445
IC505 NM24C16N
IC506 GD4066B
IC507 TC4094BP
IF BOARD
X501
X502
Q501 KRC103M
Q502 KRC103M
Q503 KRC103M
Q504 KTC3198
Q505 KTC3198
Q506 KTC3198
Q507 KTA1267
Q550 KRC103M
Q551
Q552 KTA1266
Q553 KTC3198
Q554 KTA1266
Q556 KRC103M
ZD501 MTZ6.2B
DATA2(Servo)
Servo CLK
CTL DIV
MECHA CTL
CFG DIV
CTL CLK
DRUM ADJ1
DRUM ADJ2
SLOW ACCEL
CAP BREAK
CAP REVERSE
VISS DET"L"
V. S/W 25
FF/REW"H"
A.DUB"H"
BS AFC "H"
BS AFC "L"
BS ENABLE
DATA2(BS)
CLK2(BS)
DATA2(PLL)
EXP1 ENABLE
EXP3 ENABLE
PLL ENABLE
CLK2(PLL)
A.MUTE"H"
CLK2(HI-FI)
DATA2(HI-FI)
A.DUB"H"
HI-FI ENA
AUDIO ENV
REC VR "R"
REC VR "L"
REC S."H"
A.L/M L
A.L/M R
PB "H"
VIDEO ENV
REC S."H"
SHARPNESS CT
VV/EE
SECAM DET"H"
SYNC"H"
C.ROTARY SW
HEAD AMP SW
TRIG"H"
ENV COMPARE
PREM DET"H"
VV/EE
OSD DATA
OSD CLK
OSD CS
SECAM-L"H"
TU SECAM"H"
DATA1(VPS)
CLK1(VPS)
P/C
AFC IN
SCART"H"
SCART CLK
SCART DATA
BS SIF
BS SIF
9V
5.3VA
TV CONTROL
H/P A.OUT R
H/P A.OUT L
H/P VR
DIGITAL LINK
LOADING(+)
LOADING(-)
MODE C
MODE B
MODE A
SUP SENSOR
T-UP SENSOR
CST SW
T-UP REEL
SUP REEL
5.3VA
12VA
5.3VA
POWER CTL
13VA
6VA
-31VA
TV CONTROL
DIGI-LINK
P5601
P5602
P5704 PA502
P5703 PA503
1
2
3
4
5
A
B
C
D
E
F
G
H
94. 9. 10. 7-597A

X501 is defective.
System control is unstable.

X502 is defective.
Clock doesn't operate.

IC503 is defective.
Reset doesn't operate.

Q507 is defective.
Auto tracking is unstable.

Q506 is defective.
Sharpness control is failed.

IC507 is defective.
SECAM mode, Audio L/R control, SCART control, digital Link control are unstable.

IC501 is defective.
VCR operation is all failed.

IC505 is defective.
Memory of CH is unstable.

IC504 is defective.
Tape loading or unloading is failed.

Q502, Q503 are defective.
- Supply Reel or Take-Up Reel's operation is unstable.
- Tape remain function is failed.

Q501 is defective.
Tape isn't loaded.

Q504, Q505 are defective.
L/R signal of Audio level meter isn't controlled.

IC506 is defective.
TV-programmer doesn't operate.

Q550, Q551 are defective.
TV control or SCART control is unstable.

* OPTION LIST *

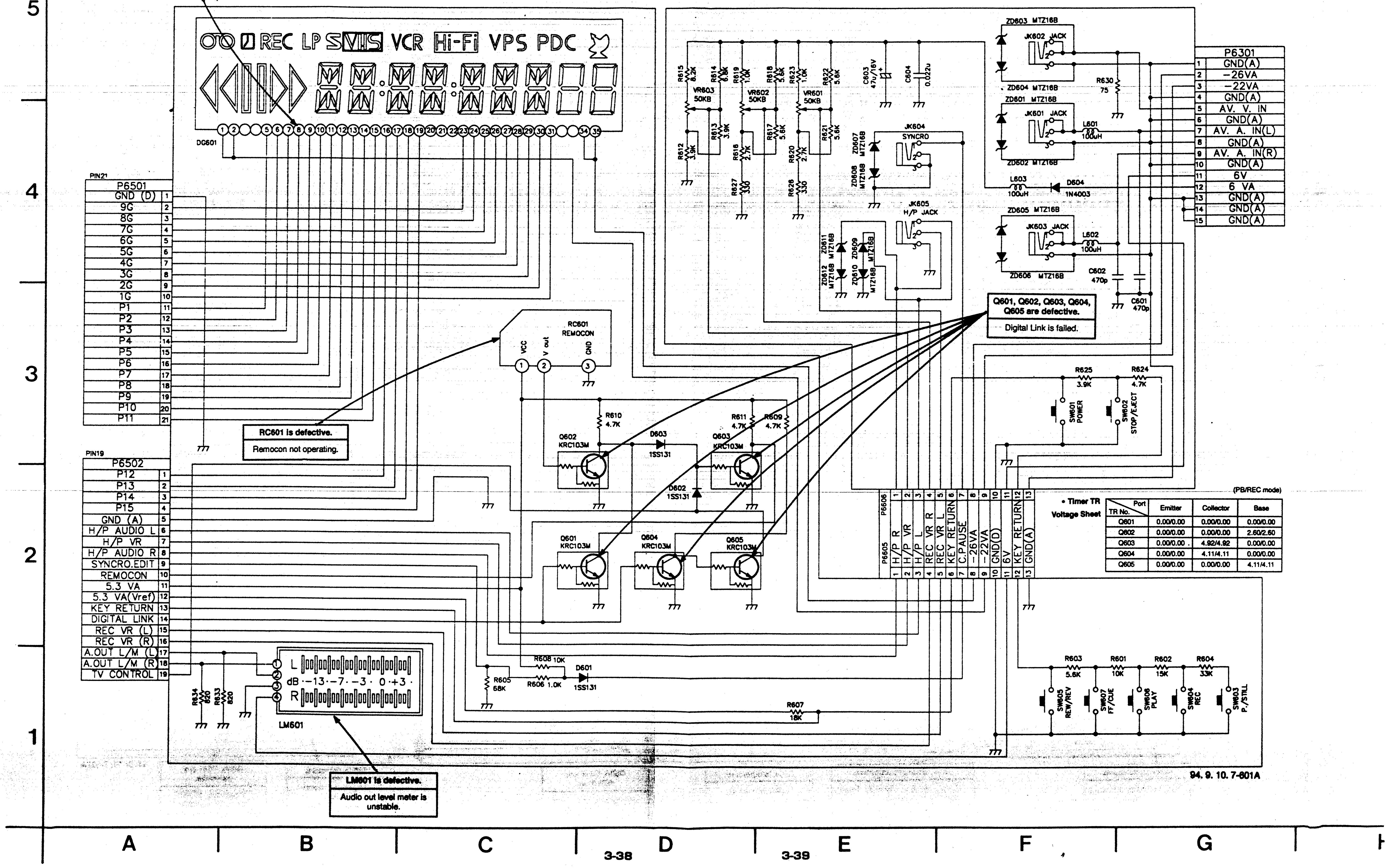
	A	B	C	D	E	etc
D5A1	O	O				VPS(PDC)
D5A2	X	X				MONO
D5A3	X	X				2HD
D5A4	X	X				sp only
D5A5	O	X				BS
D5A6	X	X				ACSS plus
D5A7	O	O				LOEWE
D5A8	O	O				SECAM
D5A9	O	O				NICAM
D5B1	X	X				G2 Only
D5B2	O	O				DIMMER
D5B3	X	X				TEST
D5B4	X	X				TEST
D5B5	X	X				TEST

A; OC3600HB B; OC3600H

6. Timer Circuit Diagram

DG601 is defective.

Digitron don't display or is unstable.


DG601
REC LP VHS VCR Hi-Fi VPS PDC
PIN21
P6501
GND (D)
9G
8G
7G
6G
5G
4G
3G
2G
1G
P1
P2
P3
P4
P5
P6
P7
P8
P9
P10
P11
PIN19
P6502
P12
P13
P14
P15
GND (A)
H/P AUDIO L
H/P VR
H/P AUDIO R
SYNCRO.EDIT
REMOCON
5.3 VA
5.3 VA(Vref)
KEY RETURN
DIGITAL LINK
REC VR (L)
REC VR (R)
A.OUT L/M (L)
A.OUT L/M (R)
TV CONTROL
RC601
REMOCON
VCC
V out
GND
R610 4.7K
Q602 KRC103M
D603 1SS131
D602 1SS131
Q603 KRC103M
R611 4.7K
R609 4.7K
Q601 KRC103M
Q604 KRC103M
Q605 KRC103M
LM601
L
dB ·-13·-7·-3· 0·+3·
R
R634 820
R633 820
R605 68K
R608 10K
R606 1.0K
D601 1SS131
R607 18K
R615 8.2K
R614 6.8K
R619 1.0K
R618 5.6K
R623 1.0K
R622 5.6K
VR603 50KB
VR602 50KB
VR601 50KB
R612 3.9K
R613 3.9K
R616 2.7K
R617 5.6K
R620 2.7K
R621 5.6K
R627 330
R626 330
C603 47u/16V
C604 0.022u
JK604 SYNCRO
ZD607 MTZ16B
ZD608 MTZ16B
JK605 H/P JACK
ZD611 MTZ16B
ZD609 MTZ16B
ZD612 MTZ16B
ZD610 MTZ16B
ZD603 MTZ16B
JK602 JACK
ZD604 MTZ16B
R630 75
ZD601 MTZ16B
JK601 JACK
L601 100uH
ZD602 MTZ16B
L603 100uH
D604 1N4003
ZD605 MTZ16B
JK603 JACK
L602 100uH
ZD606 MTZ16B
C602 470p
C601 470p
P6301
GND(A)
-26VA
-22VA
GND(A)
AV. V. IN
GND(A)
AV. A. IN(L)
GND(A)
AV. A. IN(R)
GND(A)
6V
6 VA
GND(A)
GND(A)
GND(A)
R625 3.9K
R624 4.7K
SW601 POWER
SW602 STOP/EJECT
P6606
P6605
H/P R
H/P VR
H/P L
REC VR R
REC VR L
KEY RETURN
C.PAUSE
-26VA
-22VA
GND(D)
6V
KEY RETURN
GND(A)
R603 5.6K
R601 10K
R602 15K
R604 33K
SW605 REW/REV
SW607 FF/CUE
SW606 PLAY
SW604 REC
SW603 P./STILL
94. 9. 10. 7-601A
1
2
3
4
5
A
B
C
D
E
F
G
H

RC601 is defective.

Remocon not operating.

Q601, Q602, Q603, Q604, Q605 are defective.

Digital Link is failed.

LM601 is defective.

Audio out level meter is unstable.

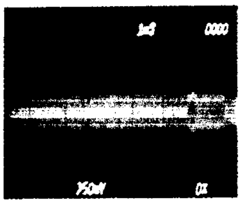
(PB/REC mode)

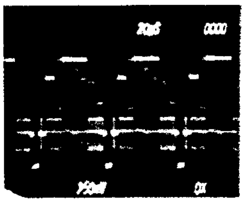
• Timer TR Voltage Sheet

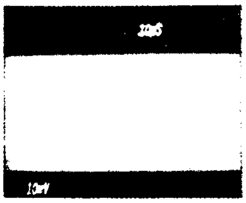
Port / TR No.	Emitter	Collector	Base
Q601	0.00/0.00	0.00/0.00	0.00/0.00
Q602	0.00/0.00	0.00/0.00	2.60/2.60
Q603	0.00/0.00	4.92/4.92	0.00/0.00
Q604	0.00/0.00	4.11/4.11	0.00/0.00
Q605	0.00/0.00	0.00/0.00	4.11/4.11

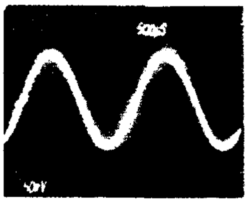
MEMO

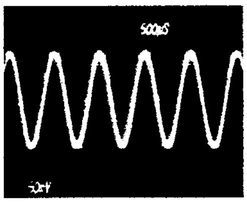
- **Tuner/IF Waveform**

①

QA07 Base
(50mV/1msec)

②

ICA05 Pin ⑬
(50mV/20μsec)

③

ICA02 Pin ⑫
(10mV/10μsec)

④

(50mV/500μsec)

⑤

ICA03 Pin ⑧
(50mV/500μsec)

- **Tuner/IF TR Voltage Sheet**

Port / TR No.	Emitter	Collector	Base
Q7A1	0.0	0.0	0.68
QA01	1.59	4.79	2.20
QA02	0.53	2.83	0.0
QA03	0.0	3.19	0.0
QA04	0.0	4.07	0.0
QA05	0.0	0.0	0.0
QA06	2.15	12.77	2.81
QA07	2.15	12.77	2.81
QA08	0.0	8.98	0.0
QA09	0.0	0.04	0.68
QA10	0.36	0.38	0.0
QA11	0.0	4.06	0.0
QA12	0.0	0.0	0.62

- **Tuner/IF IC Voltage Sheet**

PB (REC)

5.01 (4.99)	5.01 (5.0)	0.00 (0.0)	4.90 (4.87)	0.00 (0.0)	4.73 (4.72)	1.14 (2.73)	1.14 (2.82)

15 10

IC710 (TC4094BP)

1 5

0.00 (0.0)	0.74 (0.82)	0.74 (0.71)	4.79 (4.77)	0.00 (0.0)	0.00 (0.0)	4.75 (4.74)	0.00 (0.0)

REC

4.83	3.27	0.00	2.83	2.83	1.40	1.93	1.95	4.87	2.65

20 15

ICA01 (TDA9802)

1 5 10

3.32	3.32	0.75	0.25	3.15	2.64	2.15	3.29	2.15	1.74

REC

4.50	0.00	0.00	0.00	5.85	12.77	0.00	4.68

15 10

ICA02 (TDA4445B)

1 5

4.51	0.00	2.70	0.00	3.97	3.96	0.00	4.68

REC

1.75	0.00	6.86	0.00	3.21	12.80	0.00	2.26

15 10

ICA03 (TDA9830)

1 5

1.75	0.00	2.05	4.35	0.00	2.24	2.26	2.26

REC

4.96	1.31	1.46	2.61	2.58	2.61	0.01

10

ICA05 (SDA5649)

1 5

0.00	0.18	0.18	0.00	0.37	pulse	2.47

REC

0.00	2.37	2.38	0.00	0.23	1.55	1.55	4.91	0.00	3.82	2.68	3.81	3.81	0.00	3.82	3.81	0.00	3.82	3.82	3.84	3.84	3.82	3.77	0.00	7.54	8.46	7.54	3.83	3.82	0.00	3.82	3.82

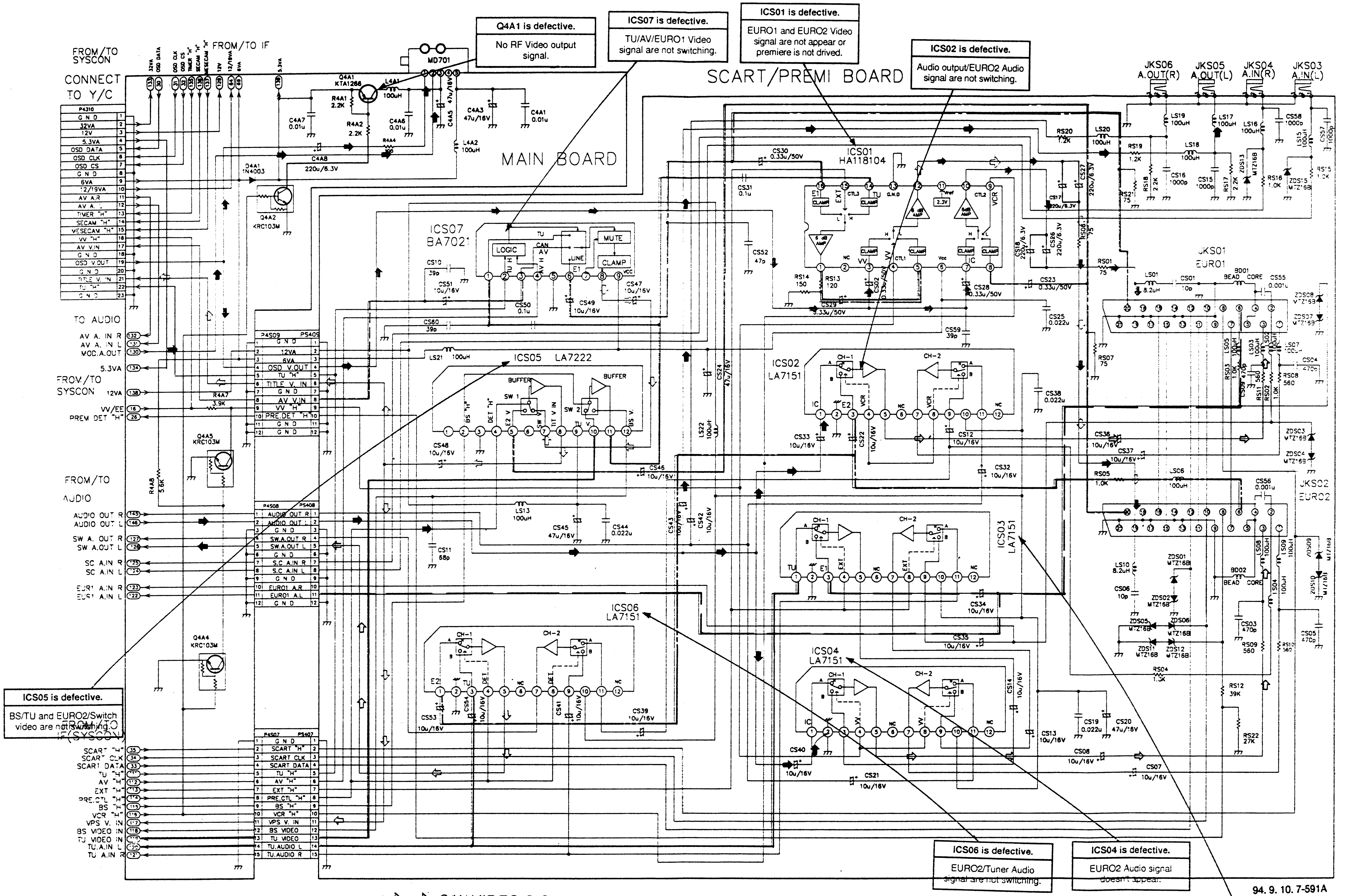
60 55 50 45 40 35

ICA04 (MSP3410)

1 5 10 15 20 25 30

2.25	0.00	0.00	0.01	0.01	0.00	5.19	0.00	0.33	0.33	2.36	2.35	2.32	2.32	2.32	2.26	1:59	4.71	0.00	2.65	4.66	2.35	1.80	5.19	0.07	0.07	0.01	0.07	0.07	0.00	3.82	3.82

8. Premiere Circuit Diagram


FROM/TO SYSCON
CONNECT TO Y/C
FROM/TO IF
MD701
Q4A1 KTA1266
MAIN BOARD
SCART/PREMI BOARD
ICS07 BA7021
ICS01 HA118104
ICS05 LA7222
ICS02 LA7151
ICS03 LA7151
ICS06 LA7151
ICS04 LA7151
JKS06 A.OUT(R)
JKS05 A.OUT(L)
JKS04 A.IN(R)
JKS03 A.IN(L)
JKS01 EURO1
JKS02 EURO2
Q4A2 KRC103M
Q4A5 KRC103M
Q4A4 KRC103M
TO AUDIO
FROM/TO AUDIO
FROM/TO IF(SYSCON)
P4310
P4S09 PS409
P4S08 PS408
P4S07 PS407
1
2
3
4
5
A
B
C
D
E
F
G
H

Q4A1 is defective.
No RF Video output signal.

ICS07 is defective.
TU/AV/EURO1 Video signal are not switching.

ICS01 is defective.
EURO1 and EURO2 Video signal are not appear or premiere is not drived.

ICS02 is defective.
Audio output/EURO2 Audio signal are not switching.

ICS05 is defective.
BS/TU and EURO2/Switch video are not switching.

ICS06 is defective.
EURO2/Tuner Audio signal are not switching.

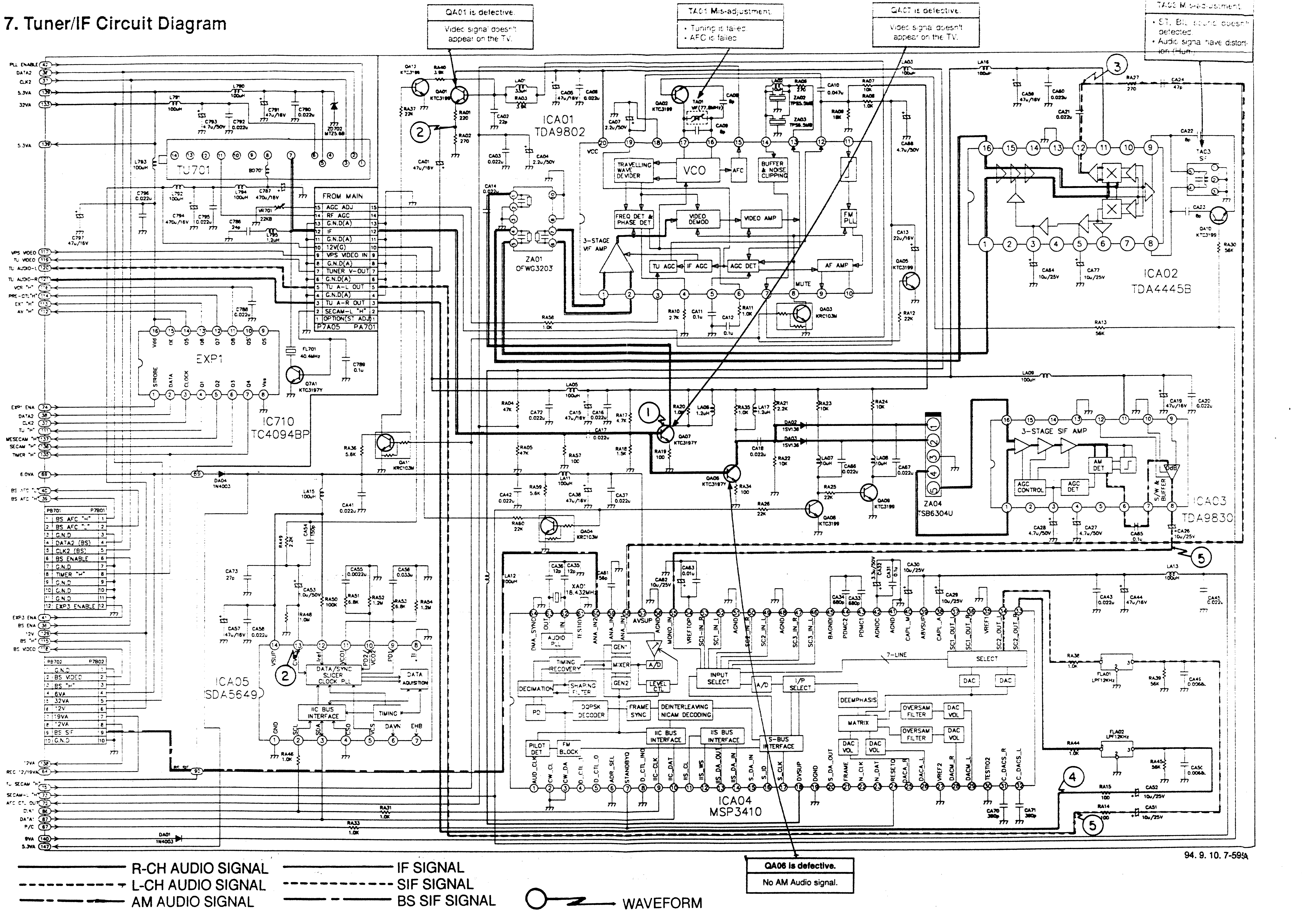
ICS04 is defective.
EURO2 Audio signal doesn't appear.

ICS03 is defective.
TU/EURO1 Audio signal are not switching.

94. 9. 10. 7-591A

———	TUNER VIDEO SIGNAL
— - —	EURO1 VIDEO SIGNAL
— - - —	EURO2 VIDEO SIGNAL
⇨ ⇨	S/W VIDEO SIGNAL
➡ ➡	V. OUT SIGNAL
- - - -	AV VIDEO SIGNAL
———	TUNER AUDIO SIGNAL L
------	EURO1 AUDIO SIGNAL L
—·-·—	EURO2 AUDIO SIGNAL L
⇨ ⇨	S/W AUDIO SIGNAL L
➡ ➡	AUDIO OUT SIGNAL L

7. Tuner/IF Circuit Diagram



QA01 is defective.
Video signal doesn't appear on the TV.

TA01 Mis-adjustment.
- Tuning is failed.
- AFC is failed.

QA07 is defective.
Video signal doesn't appear on the TV.

TA03 Mis-adjustment.
- ST, BIL sound doesn't detected.
- Audio signal have distortion (Hum).

QA06 is defective.
No AM Audio signal.

R-CH AUDIO SIGNAL
L-CH AUDIO SIGNAL
AM AUDIO SIGNAL
IF SIGNAL
SIF SIGNAL
BS SIF SIGNAL
WAVEFORM

94. 9. 10. 7-595A

TU701
EXP1
IC710
TC4094BP
FROM MAIN
P7A05
PA701
AGC ADJ
RF AGC
G.N.D(A)
IF
12V(C)
VPS VIDEO IN
TUNER V-OUT
TU A-L OUT
TU A-R OUT
SECAM-L "H"
OPTION(ST ADJ)
ICA01
TDA9802
TRAVELLING WAVE DEVIDER
VCO
AFC
BUFFER & NOISE CLIPPING
FREQ DET & PHASE DET
VIDEO DEMOD
VIDEO AMP
FM PLL
3-STAGE VIF AMP
TU AGC
IF AGC
AGC DET
AF AMP
MUTE
ZA01
OFWG3203
ICA02
TDA4445B
ICA03
TDA9830
3-STAGE SIF AMP
AGC CONTROL
AGC DET
AM DET
S/W & BUFFER
ZA04
TSB6304U
ICA05
SDA5649
DATA/SYNC SLICER CLOCK PLL
DATA AQUISITION
IIC BUS INTERFACE
TIMING
ICA04
MSP3410
AUDIO PLL
TIMING RECOVERY
DECIMATION
SHAPING FILTER
GEN1
GEN2
MIXER
A/D
LEVEL CTL
INPUT SELECT
I/P SELECT
SELECT
DAC
DQPSK DECODER
FRAME SYNC
DEINTERLEAVING NICAM DECODING
PILOT DET
FM BLOCK
IIS BUS INTERFACE
S-BUS INTERFACE
DEEMPHASIS
MATRIX
OVERSAM FILTER
DAC VOL
FLA01 LPF12KHz
FLA02 LPF12KHz
XA01 18.432MHz
FL701 40.4MHz
A
B
C
D
E
F
G
1
2
3
4
5

* SCART IC Voltage Sheet

ICS01 (HA118104)

PB

1.80	4.87	2.28	0.00	2.78	2.30	2.77	4.71
	15					10	
1				5			8
2.78	0.00	2.14	4.11	2.30	5.84	2.14	1.81

ICS02 (LA7151)

PB

1				5					10		
8.56	0.00	8.56	4.72	7.93	0.00	7.94	4.72	8.60	12.91	8.60	0.00

ICS03 (LA7151)

PB

1				5					10		
8.65	0.00	8.66	4.87	7.88	0.00	7.88	4.87	8.55	12.87	8.58	0.00

ICS04 (LA7151)

PB

1				5					10		
8.60	0.00	8.60	4.11	7.99	0.00	7.92	4.11	8.60	12.92	8.62	0.00

ICS05 (LA7222)

PB

1				5					10		
0.00	4.94	0.00	0.00	8.68	0.00	8.61	7.93	12.94	8.66	7.91	8.59

ICS06 (LA7151)

PB

1				5					10		
8.52	0.00	8.53	0.00	7.88	0.00	7.89	0.00	8.55	12.84	8.55	0.00

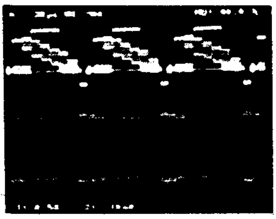
ICS07 (BA7021)

PB

1				5				
3.00	4.70	2.58	0.00	0.00	2.59	0.00	1.71	5.84

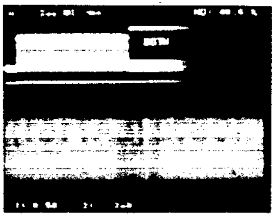
- **Pre-Amp Waveform**

①



IC802 Pin ⑪
REC Y FM

②



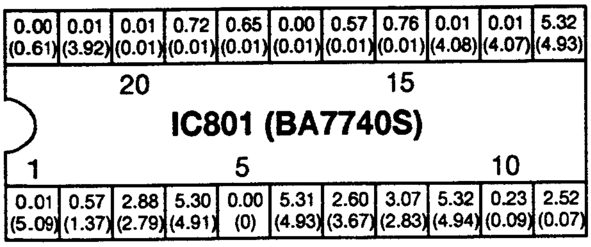
IC801 Pin ③
REC AUDIO FM

- **Pre-Amp TR Voltage Sheet** (PB/REC mode)

Port / TR No.	Emitter	Collector	Base
Q802	2.72/2.68	5.39/5.20	3.35/3.28
Q803	0.86/0.84	2.36/3.31	1.50/1.47
Q804	1.98/1.93	3.37/3.30	2.60/2.59
Q806	1.99/1.96	5.34/5.25	2.64/2.59

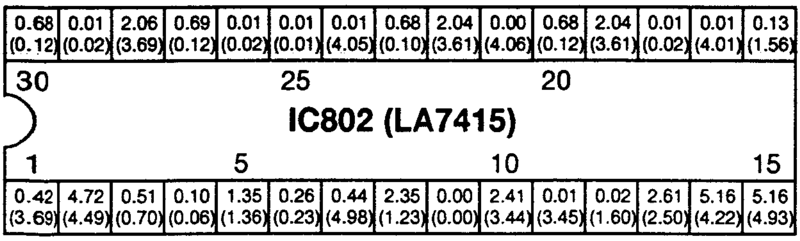
- **Pre-Amp IC Voltage Sheet**

PB (REC)



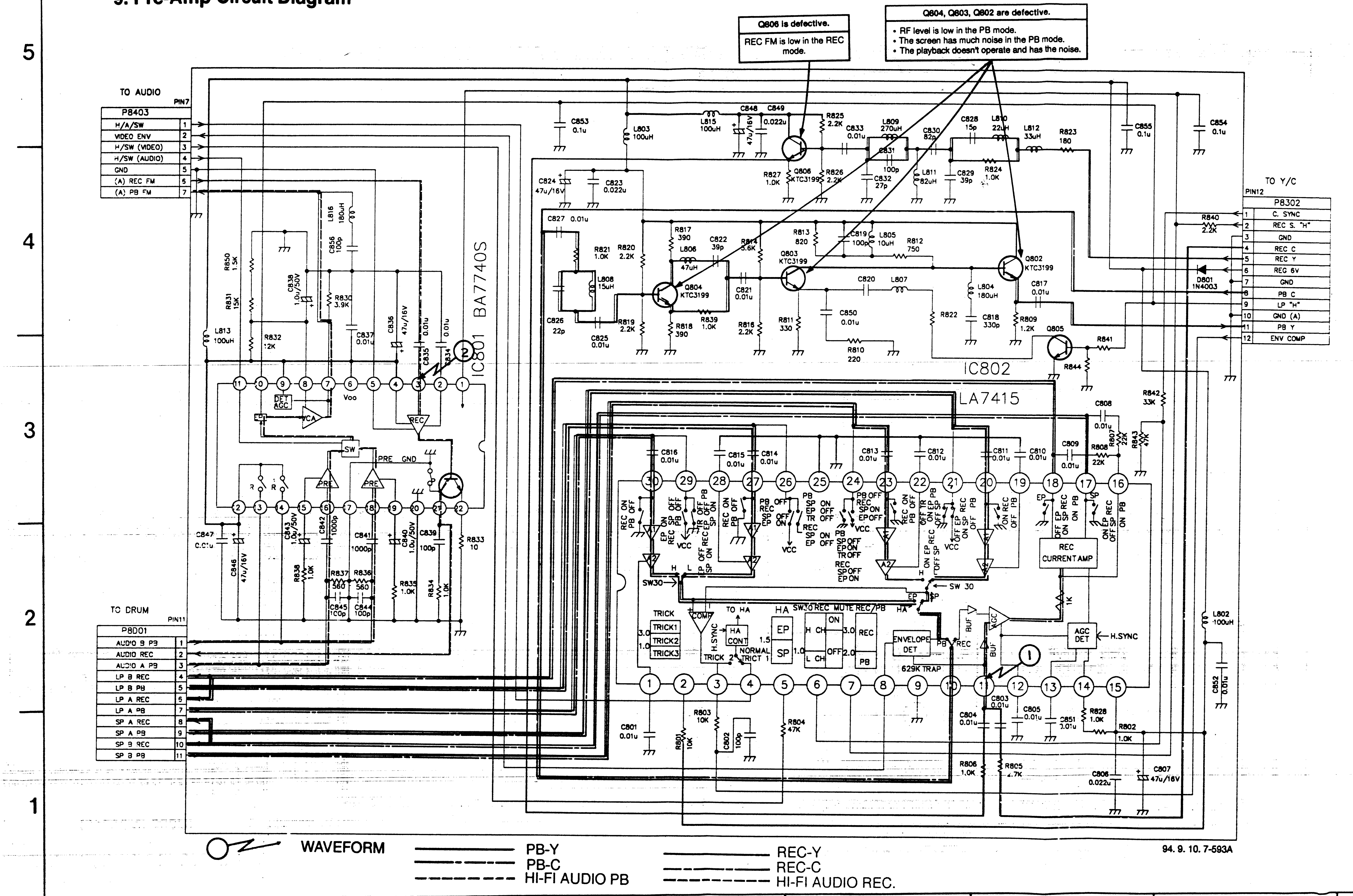
0.00 (0.61)	0.01 (3.92)	0.01 (0.01)	0.72 (0.01)	0.65 (0.01)	0.00 (0.01)	0.57 (0.01)	0.76 (0.01)	0.01 (4.08)	0.01 (4.07)	5.32 (4.93)
0.01 (5.09)	0.57 (1.37)	2.88 (2.79)	5.30 (4.91)	0.00 (0)	5.31 (4.93)	2.60 (3.67)	3.07 (2.83)	5.32 (4.94)	0.23 (0.09)	2.52 (0.07)

PB (REC)



0.68 (0.12)	0.01 (0.02)	2.06 (3.69)	0.69 (0.12)	0.01 (0.02)	0.01 (0.01)	0.01 (4.05)	0.68 (0.10)	2.04 (3.61)	0.00 (4.06)	0.68 (0.12)	2.04 (3.61)	0.01 (0.02)	0.01 (4.01)	0.13 (1.56)
0.42 (3.69)	4.72 (4.49)	0.51 (0.70)	0.10 (0.06)	1.35 (1.36)	0.26 (0.23)	0.44 (4.98)	2.35 (1.23)	0.00 (0.00)	2.41 (3.44)	0.01 (3.45)	0.02 (1.60)	2.61 (2.50)	5.16 (4.22)	5.16 (4.93)

9. Pre-Amp Circuit Diagram


TO AUDIO
PIN7
P8403
1 H/A/SW
2 VIDEO ENV
3 H/SW (VIDEO)
4 H/SW (AUDIO)
5 GND
5 (A) REC FM
7 (A) PB FM
TO Y/C
PIN12
P8302
1 C. SYNC
2 REC S. "H"
3 GND
4 REC C
5 REC Y
6 REG 6V
7 GND
8 PB C
9 LP "H"
10 GND (A)
11 PB Y
12 ENV COMP
TO DRUM
PIN11
P8D01
1 AUDIO B PB
2 AUDIO REC
3 AUDIO A PB
4 LP B REC
5 LP B PB
6 LP A REC
7 LP A PB
8 SP A REC
9 SP A PB
10 SP B REC
11 SP B PB
IC801 BA7740S
IC802
LA7415
Q806 KTC3199
Q804 KTC3199
Q803 KTC3199
Q802 KTC3199
Q805
D801 1N4003
DET AGC
VCA
REC
SW
PRE
PRE GND
Voo
REC CURRENT AMP
AGC DET
H.SYNC
AGC
BUF
ENVELOPE DET
629K TRAP
COMP
TO HA
HA CONT
TRICK
TRICK1
TRICK2
TRICK3
NORMAL TRICT
EP
SP
SW30
REC MUTE
REC/PB
ON
OFF
H CH
L CH
VCC
C853 0.1u
L803 100uH
L815 100uH
C848 47u/16V
C849 0.022u
R825 2.2K
C833 0.01u
L809 270uH
C831 100p
C830 82p
C828 15p
L810 22uH
L812 33uH
R823 180
C855 0.1u
C854 0.1u
C824 47u/16V
C823 0.022u
R827 1.0K
R826 2.2K
C832 27p
L811 82uH
C829 39p
R824 1.0K
C827 0.01u
R821 1.0K
R820 2.2K
R817 390
L806 47uH
C822 39p
R814 5.6K
R813 820
C819 100p
L805 10uH
R812 750
L808 15uH
C826 22p
C825 0.01u
R819 2.2K
R818 390
R839 1.0K
C821 0.01u
R816 2.2K
R811 330
C850 0.01u
R810 220
C820
L807
R822
L804 180uH
C818 330p
C817 0.01u
R809 1.2K
R841
R844
R842 33K
R843 47K
R840 2.2K
C808 0.01u
R807 22K
C809 0.01u
R808 22K
C816 0.01u
C815 0.01u
C814 0.01u
C813 0.01u
C812 0.01u
C811 0.01u
C810 0.01u
L816 180uH
C856 100p
R850 1.5K
R831 15K
C838 1.0u/50V
R830 3.9K
C837 0.01u
C836 47u/16V
C835 0.01u
C834 0.01u
L813 100uH
R832 12K
C847 0.01u
C846 47u/16V
C843 1.0u/50V
C842 1000p
C841 1000p
C840 1.0u/50V
C839 100p
R833 10
R838 1.0K
R837 560
R836 560
C845 100p
C844 100p
R835 1.0K
R834 1.0K
C801 0.01u
R801 10K
R803 10K
C802 100p
R804 47K
C804 0.01u
C803 0.01u
C805 0.01u
C851 0.01u
R828 1.0K
R802 1.0K
R806 1.0K
R805 4.7K
C806 0.022u
C807 47u/16V
L802 100uH
C852 0.01u
①
②

Q806 is defective.

REC FM is low in the REC mode.

Q804, Q803, Q802 are defective.

- RF level is low in the PB mode.
- The screen has much noise in the PB mode.
- The playback doesn't operate and has the noise.

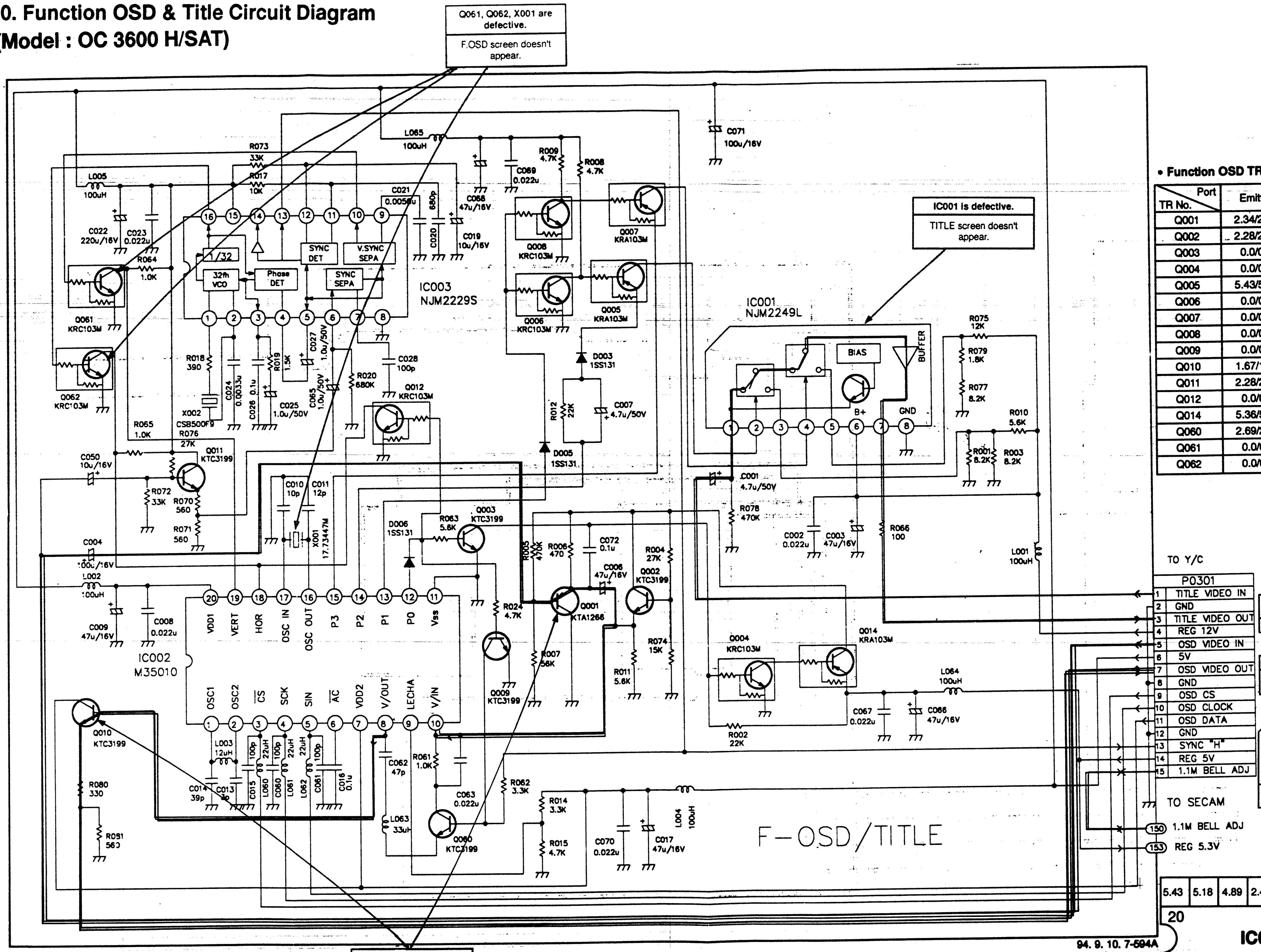
WAVEFORM

PB-Y
PB-C
HI-FI AUDIO PB

REC-Y
REC-C
HI-FI AUDIO REC.

94. 9. 10. 7-593A

10. Function OSD & Title Circuit Diagram
(Model : OC 3600 H/SAT)


L005
100uH
C022
220u/16V
C023
0.022u
R073
33K
R017
10K
C021
0.0056u
680p
C020
C068
47u/16V
C019
10u/16V
L065
100uH
C069
0.022u
R009
4.7K
R008
4.7K
C071
100u/16V
1/32
32fH
VCO
Phase
DET
SYNC
DET
SYNC
SEPA
V.SYNC
SEPA
IC003
NJM2229S
R064
1.0K
Q061
KRC103M
Q062
KRC103M
R018
390
X002
CSB500F9
C024
0.0033u
C026
0.1u
R019
1.5K
C027
1.0u/50V
C025
1.0u/50V
C065
1.0u/50V
R020
680K
C028
100p
Q012
KRC103M
R065
1.0K
R076
27K
Q011
KTC3199
C050
10u/16V
R072
33K
R070
560
R071
560
Q008
KRC103M
Q006
KRC103M
Q007
KRA103M
Q005
KRA103M
D003
1SS131
R012
22K
C007
4.7u/50V
D005
1SS131
IC001
NJM2249L
BIAS
BUFFER
B+
GND
R075
12K
R079
1.8K
R077
8.2K
R010
5.6K
R001
8.2K
R003
8.2K
C001
4.7u/50V
R078
470K
C002
0.022u
C003
47u/16V
R066
100
L001
100uH
C004
100u/16V
L002
100uH
C009
47u/16V
C008
0.022u
C010
10p
C011
12p
X001
17.73447M
D006
1SS131
R063
5.6K
Q003
KTC3199
R005
R006
470
C072
0.1u
C006
47u/16V
R004
27K
Q002
KTC3199
R024
4.7K
Q001
KTA1266
R007
56K
Q009
KTC3199
R011
5.6K
R074
15K
Q004
KRC103M
Q014
KRA103M
L064
100uH
C067
0.022u
C066
47u/16V
R002
22K
IC002
M35010
VDD1
VERT
HOR
OSC IN
OSC OUT
P3
P2
P1
P0
Vss
OSC1
OSC2
CS
SCK
SIN
AC
VDD2
V/OUT
LECHA
V/IN
Q010
KTC3199
R080
330
R081
560
L003
12uH
C014
39p
C013
3p
C015
L060
C060
L061
L062
C061
C016
0.1u
100p
22uH
22uH
100p
C062
47p
R061
1.0K
L063
33uH
C063
0.022u
Q060
KTC3199
R062
3.3K
R014
3.3K
R015
4.7K
C070
0.022u
C017
47u/16V
L004
100uH
F-OSD/TITLE
TO Y/C
P0301
1 TITLE VIDEO IN
2 GND
3 TITLE VIDEO OUT
4 REG 12V
5 OSD VIDEO IN
6 5V
7 OSD VIDEO OUT
8 GND
9 OSD CS
10 OSD CLOCK
11 OSD DATA
12 GND
13 SYNC "H"
14 REG 5V
15 1.1M BELL ADJ
TO SECAM
150 1.1M BELL ADJ
153 REG 5.3V
94. 9. 10. 7-594A

Q061, Q062, X001 are defective.

F.OSD screen doesn't appear.

IC001 is defective.

TITLE screen doesn't appear.

Q001, Q010 are defective.

Video signal doesn't appear on the TV screen.

PB VIDEO SIGNAL

EE VIDEO SIGNAL

• Function OSD TR Voltage Sheet (PB/REC mode)

TR No. \ Port	Emitter	Collector	Base
Q001	2.34/2.34	0.0/0.0	1.67/1.67
Q002	2.28/2.28	5.24/5.24	1.84/1.84
Q003	0.0/0.0	2.81/2.81	0.0/0.0
Q004	0.0/0.0	0.0/0.0	2.82/2.82
Q005	5.43/5.43	0.0/0.0	5.45/5.45
Q006	0.0/0.0	5.45/5.45	0.0/0.0
Q007	0.0/0.0	0.0/0.0	4.88/4.88
Q008	0.0/0.0	4.88/4.88	0.0/0.0
Q009	0.0/0.0	3.35/3.35	0.0/0.0
Q010	1.67/1.67	5.44/5.44	2.28/2.28
Q011	2.28/2.28	5.40/5.40	2.90/2.90
Q012	0.0/0.0	4.90/4.90	0.0/0.0
Q014	5.36/5.36	5.23/5.23	0.0/0.0
Q060	2.69/2.69	2.69/2.69	3.35/3.35
Q061	0.0/0.0	5.18/5.18	0.17/0.17
Q062	0.0/0.0	4.90/4.90	0.33/0.33

• Function OSD IC Voltage Sheet

IC003 (NJM2229S)

							PB
0.33	5.40	0.00	4.71	1.89	0.61	0.17	0.19
	15					10	
1				5			8
2.96	2.28	2.44	-0.00	4.31	2.99	2.33	0.00

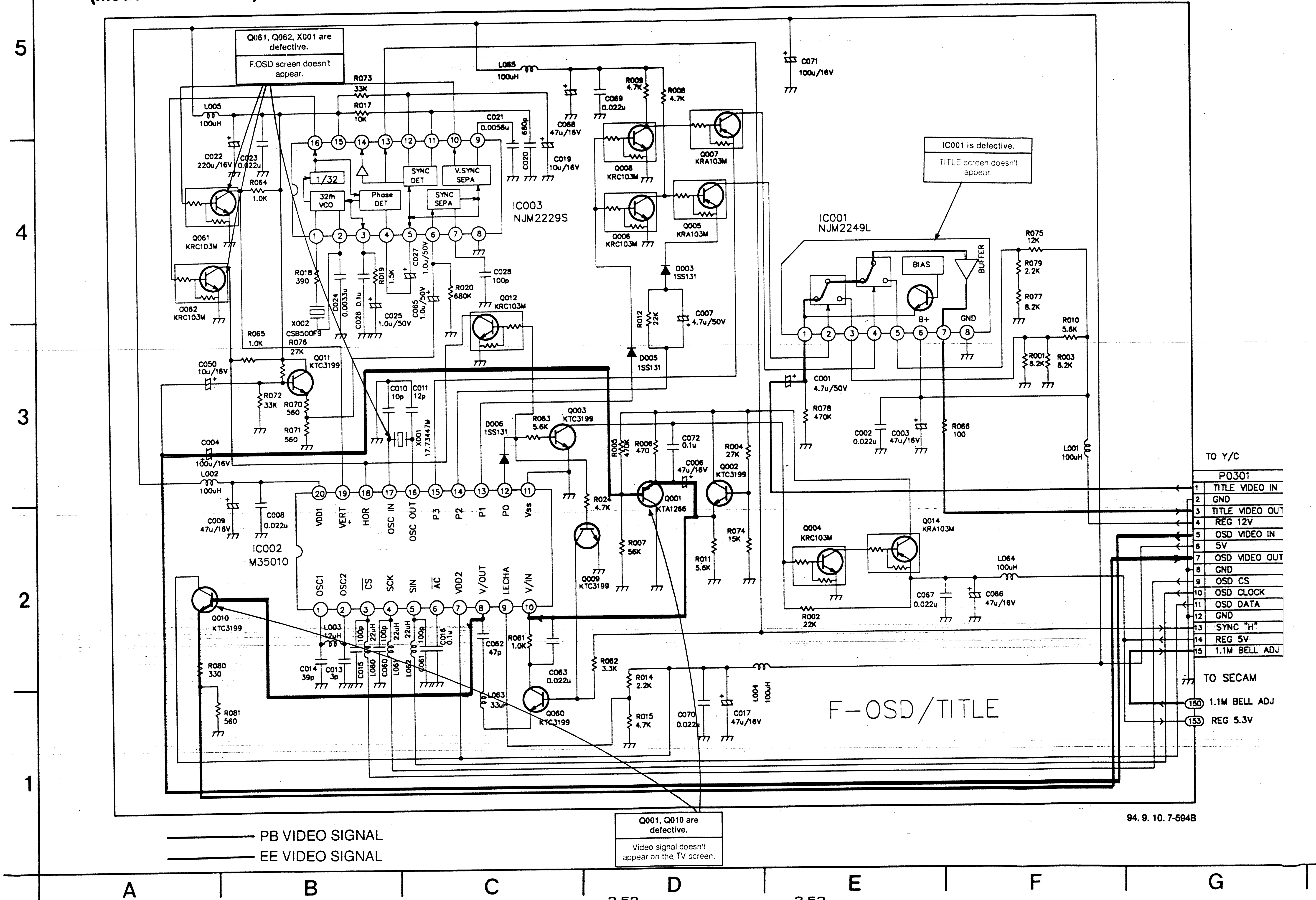
IC001 (NJM2249L)

							PB
1				5			
5.33	0.01	5.29	0.01	5.74	12.68	4.63	0.00

IC002 (M35010)

									PB
5.43	5.18	4.89	2.47	2.47	0.00	0.00	0.00	0.00	0.00
20					15				11
1				5					10
2.53	2.55	3.99	5.38	5.41	5.39	5.42	2.27	3.42	2.27

Function OSD & Title Circuit Diagram
(Model : OC 3600 H)


Q061, Q062, X001 are defective.
F.OSD screen doesn't appear.

IC001 is defective.
TITLE screen doesn't appear.

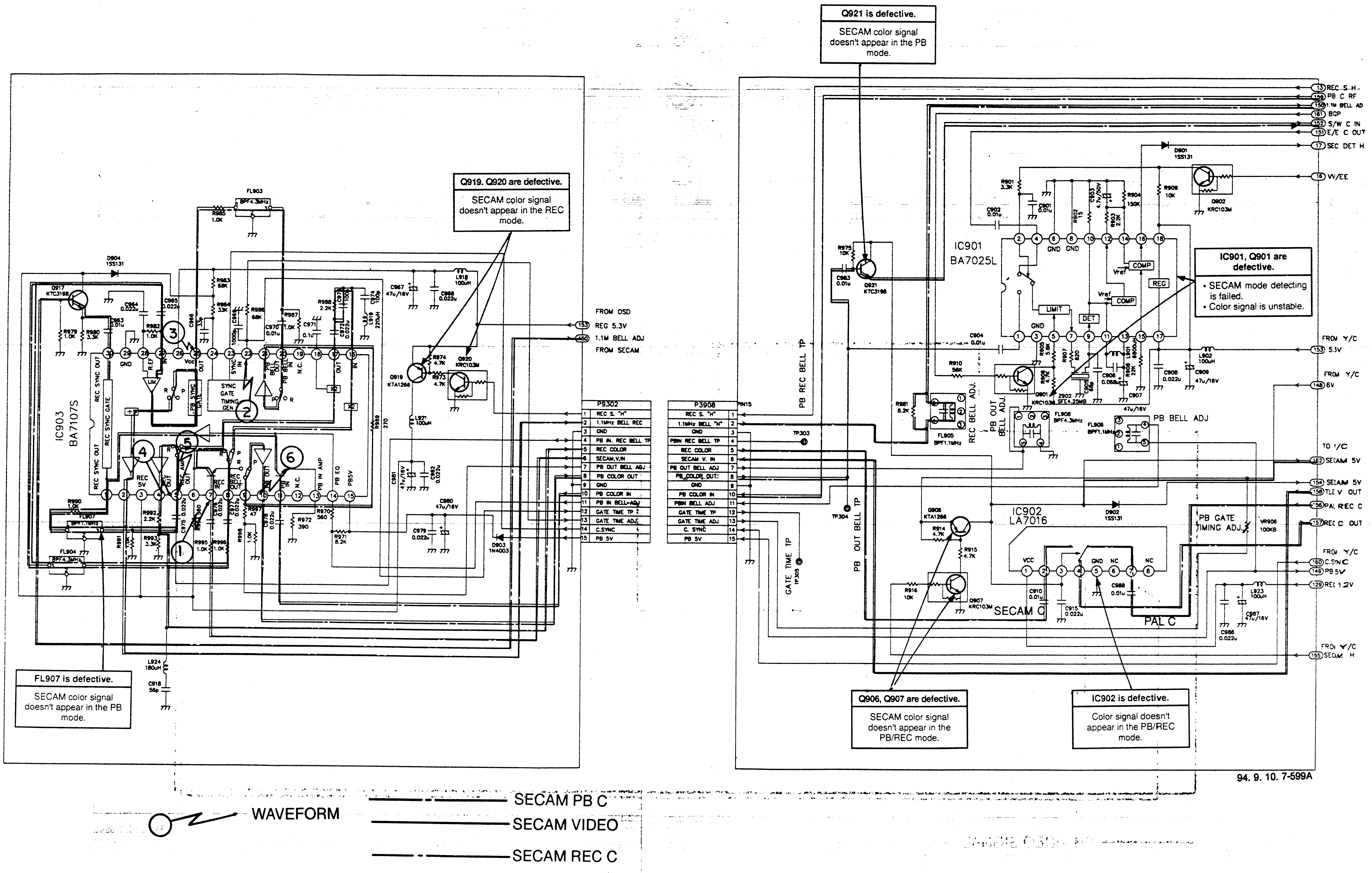
Q001, Q010 are defective.
Video signal doesn't appear on the TV screen.

PB VIDEO SIGNAL
EE VIDEO SIGNAL

94. 9. 10. 7-594B

F-OSD/TITLE
IC003
NJM2229S
IC001
NJM2249L
IC002
M35010
1/32
32fh VCO
Phase DET
SYNC DET
V.SYNC SEPA
SYNC SEPA
BIAS
BUFFER
B+
GND
VDD1
VERT
HOR
OSC IN
OSC OUT
P3
P2
P1
P0
Vss
OSC1
OSC2
CS
SCK
SIN
AC
VDD2
V/OUT
LECHA
V/IN
Q061 KRC103M
Q062 KRC103M
Q011 KTC3199
Q012 KRC103M
Q008 KRC103M
Q007 KRA103M
Q006 KRC103M
Q005 KRA103M
Q003 KTC3199
Q001 KTA1266
Q002 KTC3199
Q009 KTC3199
Q004 KRC103M
Q014 KRA103M
Q010 KTC3199
Q060 KTC3199
X002 CSB500F9
X001 17.73447M
D003 1SS131
D005 1SS131
D006 1SS131
L005 100uH
L065 100uH
L002 100uH
L001 100uH
L064 100uH
L004 100uH
L003 12uH
L063 33uH
L060 22uH
L062 22uH
C022 220u/16V
C023 0.022u
C021 0.0056u
C020 680p
C019 10u/16V
C068 47u/16V
C069 0.022u
C071 100u/16V
C024 0.0033u
C026 0.1u
C025 1.0u/50V
C027 1.0u/50V
C065 1.0u/50V
C028 100p
C007 4.7u/50V
C050 10u/16V
C004 100u/16V
C009 47u/16V
C008 0.022u
C010 10p
C011 12p
C072 0.1u
C006 47u/16V
C001 4.7u/50V
C002 0.022u
C003 47u/16V
C067 0.022u
C066 47u/16V
C014 39p
C013 3p
C015
C016 0.1u
C062 47p
C063 0.022u
C070 0.022u
C017 47u/16V
R073 33K
R017 10K
R064 1.0K
R018 390
R019 1.5K
R020 680K
R065 1.0K
R076 27K
R072 33K
R070 560
R071 560
R009 4.7K
R008 4.7K
R012 22K
R063 5.6K
R005 470K
R006 470
R004 27K
R024 4.7K
R007 56K
R011 5.6K
R074 15K
R078 470K
R066 100
R075 12K
R079 2.2K
R077 8.2K
R010 5.6K
R001 8.2K
R003 8.2K
R002 22K
R080 330
R081 560
R061 1.0K
R062 3.3K
R014 2.2K
R015 4.7K
TO Y/C
P0301
1 TITLE VIDEO IN
2 GND
3 TITLE VIDEO OUT
4 REG 12V
5 OSD VIDEO IN
6 5V
7 OSD VIDEO OUT
8 GND
9 OSD CS
10 OSD CLOCK
11 OSD DATA
12 GND
13 SYNC "H"
14 REG 5V
15 1.1M BELL ADJ
TO SECAM
150 1.1M BELL ADJ
153 REG 5.3V
1
2
3
4
5
A
B
C
D
E
F
G

11. SECAM Circuit Diagram


IC903
BA7107S
IC901
BA7025L
IC902
LA7016
Q917 KTC3198
Q919 KTA1266
Q920 KRC103M
Q921 KTC3198
Q901 KRC103M
Q902 KRC103M
Q906 KTA1266
Q907 KRC103M
D904 1SS131
D901 1SS131
D902 1SS131
D903 1N4003
FL903 BPF4.3MHz
FL904 BPF4.3MHz
FL907 BPF1.1MHz
FL905 BPF1.1MHz
FL906 BPF4.3MHz
Z902 SFE4.25MB
VR906 100KB
REC SYNC OUT
REC SYNC GATE
SYNC GATE TIMING GEN
PB IN AMP
PB EQ
PB5V
REC 5V
LIMIT
DET
COMP
REG
Vref
GND
VCC
NC
FROM OSD
REG 5.3V
1.1M BELL ADJ
FROM SECAM
P9302
1 REC S. "H"
2 1.1MHz BELL REC
3 GND
4 PB IN. REC BELL TP
5 REC COLOR
6 SECAM,V,IN
7 PB OUT BELL ADJ
8 PB COLOR OUT
9 GND
10 PB COLOR IN
11 PB IN BELL-ADJ
12 GATE TIME TP
13 GATE TIME ADJ
14 C.SYNC
15 PB 5V
P3908
PIN15
REC S. "H" 1
1.1MHz BELL "H" 2
GND 3
PBIN REC BELL TP 4
REC COLOR 5
SECAM V. IN 6
PB OUT BELL ADJ 7
PB COLOR OUT 8
GND 9
PB COLOR IN 10
PBIN BELL ADJ 11
GATE TIME TP 12
GATE TIME ADJ 13
C. SYNC 14
PB 5V 15
TP303
TP304
TP305
GATE TIME TP
PB OUT BELL TP
PB REC BELL TP
REC BELL ADJ.
PB OUT BELL ADJ.
PB BELL ADJ
PB GATE TIMING ADJ.
SECAM C
PAL C
13 REC S H
159 PB C RF
150 1.1M BELL AD
161 BGP
152 S/W C IN
151 E/E C OUT
17 SEC DET H
16 W/EE
FROM Y/C
153 5.3V
FROM Y/C
148 6V
TO Y/C
162 SECAM 5V
154 SECAM 5V
158 TLE V OUT
156 PAL REC C
157 REC C OUT
FROM Y/C
160 C.SYNC
149 PB 5V
129 REC 12V
FROM Y/C
155 SECAM H
WAVEFORM
SECAM PB C
SECAM VIDEO
SECAM REC C

Q921 is defective.

SECAM color signal doesn't appear in the PB mode.

Q919, Q920 are defective.

SECAM color signal doesn't appear in the REC mode.

IC901, Q901 are defective.

- SECAM mode detecting is failed.
- Color signal is unstable.

FL907 is defective.

SECAM color signal doesn't appear in the PB mode.

Q906, Q907 are defective.

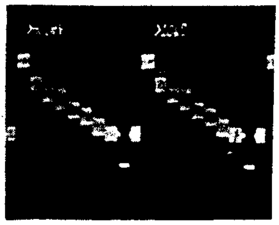
SECAM color signal doesn't appear in the PB/REC mode.

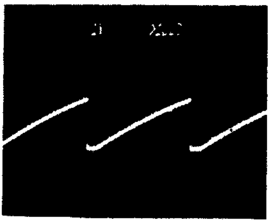
IC902 is defective.

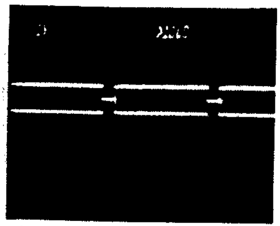
Color signal doesn't appear in the PB/REC mode.

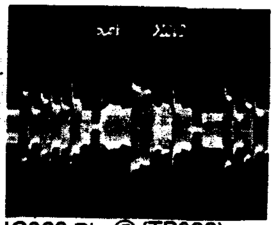
94. 9. 10. 7-599A

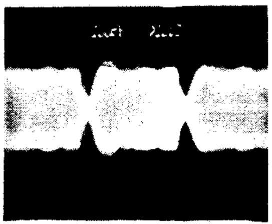
• SECAM Oscilloscope Waveform

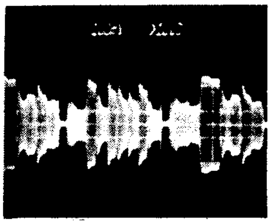
①

IC903 pin ㊵
SECAM REC/PB
VIDEO OUTPUT

②

IC903 Pin ㉒
SECAM REC/PB
Gate Timing

③

IC903 Pin ㉘
SECAM PB Gate
Timing Output

④

IC903 Pin ⑤ (TP303)
REC Bell Adjustment

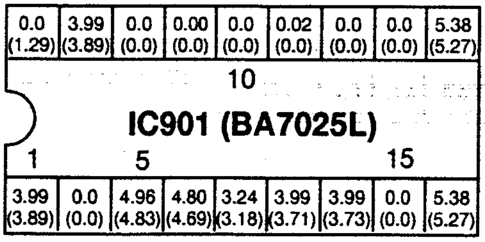
⑤

IC903 Pin ⑤ (TP 303)
PB Input Bell Adjustment

⑥

IC903 Pin ⑩ (TP 304)
PB out Bell Adjustment

• SECAM TR Voltage Sheet (PB/REC mode)

Port / TR No.	Emitter	Collector	Base
Q901	0.0/0.0	4.96/4.87	0.17/0.16
Q902	0.0/0.0	0.0/2.28	5.15/0.0
Q906	6.12/6.05	0.09/0.10	6.11/6.05
Q907	0.0/0.0	6.11/6.04	0.0/0.0
Q917	0.0/2.70	0.51/5.03	0.0/3.30
Q919	5.39/5.26	0.51/5.10	5.37/4.48
Q920	0.0/0.0	5.37/0.0	0.35/5.19
Q921	2.62/0.02	0.08/0.10	0.08/0.10

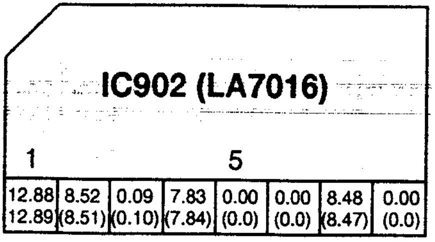
• SECAM IC Voltage Sheet



PB (REC)

IC901 (BA7025L)

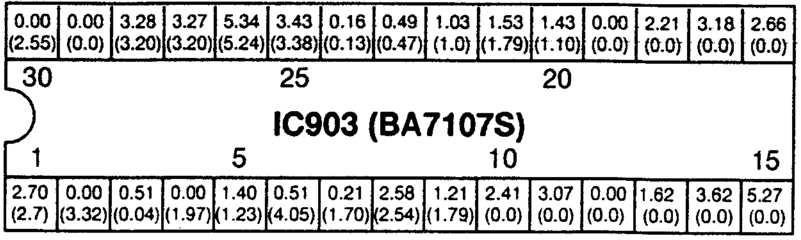
0.0 (1.29)	3.99 (3.89)	0.0 (0.0)	0.00 (0.0)	0.0 (0.0)	0.02 (0.0)	0.0 (0.0)	0.0 (0.0)	5.38 (5.27)
3.99 (3.89)	0.0 (0.0)	4.96 (4.83)	4.80 (4.69)	3.24 (3.18)	3.99 (3.71)	3.99 (3.73)	0.0 (0.0)	5.38 (5.27)



PB (REC)

IC902 (LA7016)

12.88 12.89	8.52 (8.51)	0.09 (0.10)	7.83 (7.84)	0.00 (0.0)	0.00 (0.0)	8.48 (8.47)	0.00 (0.0)

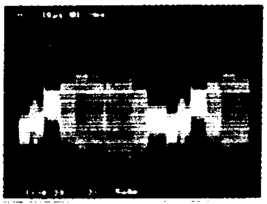


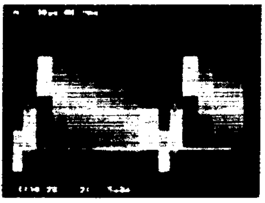
PB (REC)

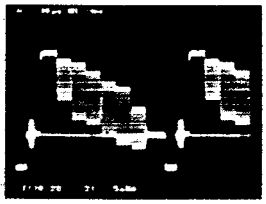
IC903 (BA7107S)

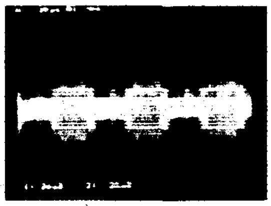
0.00 (2.55)	0.00 (0.0)	3.28 (3.20)	3.27 (3.20)	5.34 (5.24)	3.43 (3.38)	0.16 (0.13)	0.49 (0.47)	1.03 (1.0)	1.53 (1.79)	1.43 (1.10)	0.00 (0.0)	2.21 (0.0)	3.18 (0.0)	2.66 (0.0)
2.70 (2.7)	0.00 (3.32)	0.51 (0.04)	0.00 (1.97)	1.40 (1.23)	0.51 (4.05)	0.21 (1.70)	2.58 (2.54)	1.21 (1.79)	2.41 (0.0)	3.07 (0.0)	0.00 (0.0)	1.62 (0.0)	3.62 (0.0)	5.27 (0.0)

* BS Waveform

①

TU702 Pin ⑦
Base Band Signal
(0.2V/10μsec)

②

Q704 Emitter
Dispersual Video Signal
(0.2V/10μsec)

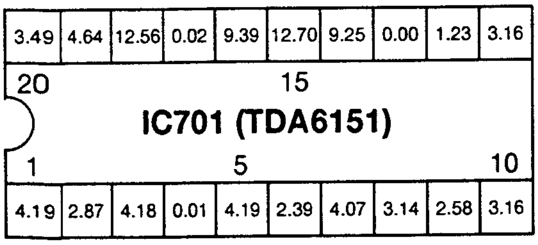
③

C707 (+)
VIDEO Signal
(0.2V/10μsec)

④

IC701 Pin ⑱
SIF Signal
(20mV/20μsec)

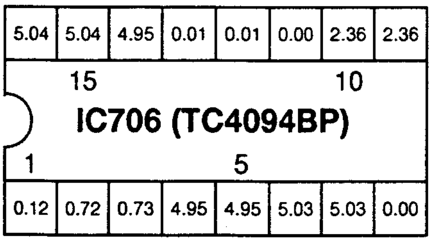
* BS TR Voltage Sheet

Port / TR No.	Emitter	Collector	Base
Q701	9.75	2.85	9.12
Q702	3.42	12.14	3.98
Q703	12.77	6.52	12.14
Q704	5.90	12.78	6.52
Q705	18.61	18.60	17.90
Q706	0.00	0.07	4.93
Q707	18.62	18.60	17.92
Q708	0.00	0.10	3.97
Q709	13.11	18.56	14.35
Q710	13.09	12.89	12.34
Q711	0.00	0.06	4.75
Q712	5.01	4.91	4.29
Q713	0.00	0.04	4.74
Q714	0.00	0.02	4.75
Q715	18.59	18.58	17.88
Q716	0.0	0.09	4.93
Q717	18.58	18.58	17.89
Q718	18.58	17.89	18.53
Q719	0.00	3.97	0.02

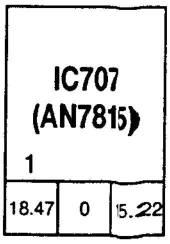
* BS IC Voltage Sheet


IC701 (TDA6151)

3.49	4.64	12.56	0.02	9.39	12.70	9.25	0.00	1.23	3.16
20					15				
1				5					10
4.19	2.87	4.18	0.01	4.19	2.39	4.07	3.14	2.58	3.16

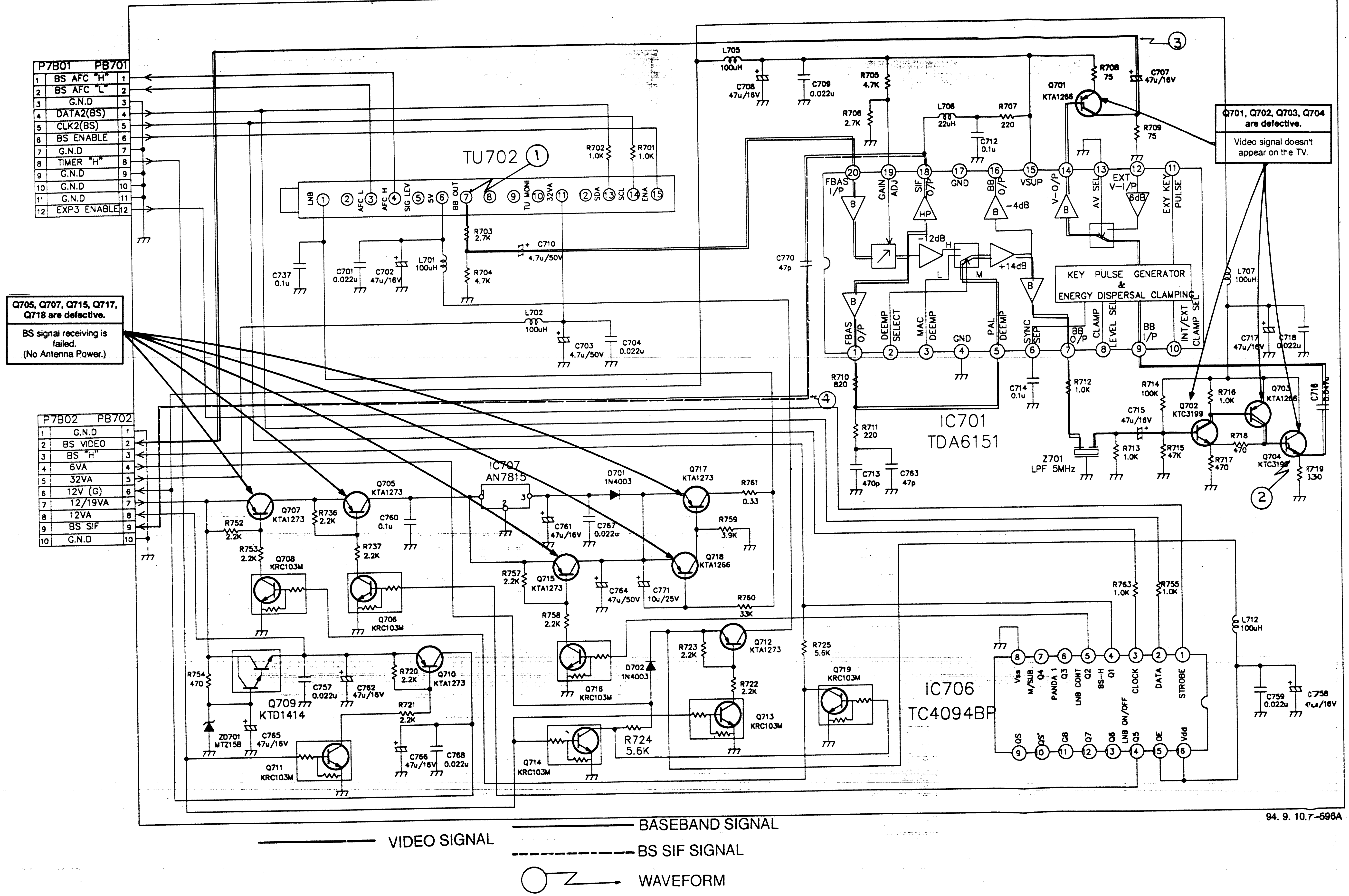

IC706 (TC4094BP)

5.04	5.04	4.95	0.01	0.01	0.00	2.36	2.36
	15					10	
1				5			
0.12	0.72	0.73	4.95	4.95	5.03	5.03	0.00


IC707 (AN7815)

1		
18.47	0	5.22

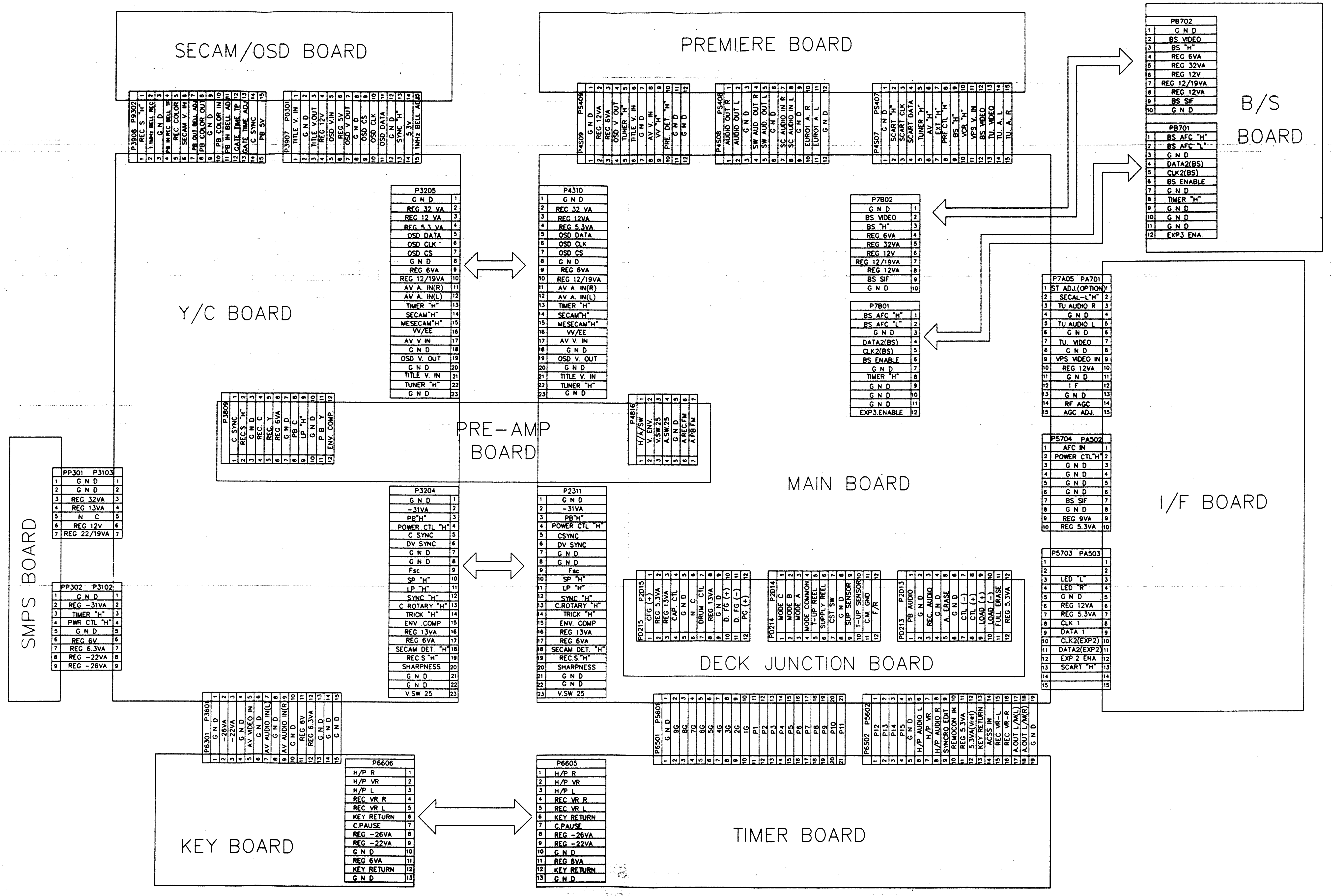
12. BS Circuit Diagram
(Model : Only for OC 3600 H/SAT)


Q701, Q702, Q703, Q704 are defective.
Video signal doesn't appear on the TV.

Q705, Q707, Q715, Q717, Q718 are defective.
BS signal receiving is failed.
(No Antenna Power.)

P7B01 PB701
1 BS AFC "H" 1
2 BS AFC "L" 2
3 G.N.D 3
4 DATA2(BS) 4
5 CLK2(BS) 5
6 BS ENABLE 6
7 G.N.D 7
8 TIMER "H" 8
9 G.N.D 9
10 G.N.D 10
11 G.N.D 11
12 EXP3 ENABLE 12
P7B02 PB702
1 G.N.D 1
2 BS VIDEO 2
3 BS "H" 3
4 6VA 4
5 32VA 5
6 12V (G) 6
7 12/19VA 7
8 12VA 8
9 BS SIF 9
10 G.N.D 10
TU702 ①
LNB ① ② AFC L ③ AFC H ④ SIG LEV ⑤ 5V ⑥ BB OUT ⑦ ⑧ ⑨ TU MONI ⑩ 32VA ⑪ ⑫ SDA ⑬ SCL ⑭ ENA ⑮
R702 1.0K
R701 1.0K
R703 2.7K
R704 4.7K
C710 4.7u/50V
C737 0.1u
C701 0.022u
C702 47u/16V
L701 100uH
L702 100uH
C703 4.7u/50V
C704 0.022u
L705 100uH
C708 47u/16V
C709 0.022u
R705 4.7K
R706 2.7K
L706 22uH
R707 220
C712 0.1u
Q701 KTA1266
R708 75
C707 47u/16V
R709 75
③
FBAS I/P ⑳
GAIN ADJ ⑲
SIF O/P ⑱
GND ⑰
BB O/P ⑯
VSUP ⑮
V-O/P ⑭
AV SEL ⑬
EXT V-I/P ⑫
EXY KEY PULSE ⑪
B
HP
-2dB
H
L
M
+14dB
-4dB
6dB
KEY PULSE GENERATOR & ENERGY DISPERSAL CLAMPING
FBAS O/P ①
DEEMP SELECT ②
MAC DEEMP ③
GND ④
PAL DEEMP ⑤
SYNC SEP ⑥
BB O/P ⑦
CLAMP LEVEL SEL ⑧
BB I/P ⑨
INT/EXT CLAMP SEL ⑩
C770 47p
R710 820
R711 220
C713 470p
C763 47p
C714 0.1u
R712 1.0K
IC701 TDA6151
④
L707 100uH
C717 47u/16V
C718 0.022u
R714 100K
R716 1.0K
Q703 KTA1266
C716 0.047u
C715 47u/16V
Q702 KTC3199
R713 1.0K
R715 47K
R718 470
R717 470
Q704 KTC3199
R719 330
②
Z701 LPF 5MHz
Q707 KTA1273
R736 2.2K
Q705 KTA1273
C760 0.1u
IC707 AN7815
1 2 3
D701 1N4003
C761 47u/16V
C767 0.022u
Q717 KTA1273
R761 0.33
R759 3.9K
R752 2.2K
R753 2.2K
Q708 KRC103M
R737 2.2K
Q706 KRC103M
R757 2.2K
Q715 KTA1273
C764 47u/50V
C771 10u/25V
Q718 KTA1266
R760 33K
R758 2.2K
Q716 KRC103M
D702 1N4003
R723 2.2K
Q712 KTA1273
R722 2.2K
Q713 KRC103M
R725 5.6K
Q719 KRC103M
R754 470
Q709 KTD1414
C757 0.022u
C762 47u/16V
R720 2.2K
Q710 KTA1273
R721 2.2K
ZD701 MTZ15B
C765 47u/16V
Q711 KRC103M
C766 47u/16V
C768 0.022u
Q714 KRC103M
R724 5.6K
R763 1.0K
R755 1.0K
IC706 TC4094BP
Vss ⑧ M/SUB Q4 ⑦ PANDA 1 Q3 ⑥ LNB CONT Q2 ⑤ BS-H Q1 ④ CLOCK ③ DATA ② STROBE ①
QS ⑨ QS' ⑩ Q8 ⑪ Q7 ⑫ Q6 ⑬ LNB ON/OFF Q5 ⑭ OE ⑮ Vdd ⑯
L712 100uH
C759 0.022u
C758 47u/16V
94. 9. 10.7-596A
VIDEO SIGNAL
BASEBAND SIGNAL
BS SIF SIGNAL
WAVEFORM

13. Connection Diagram

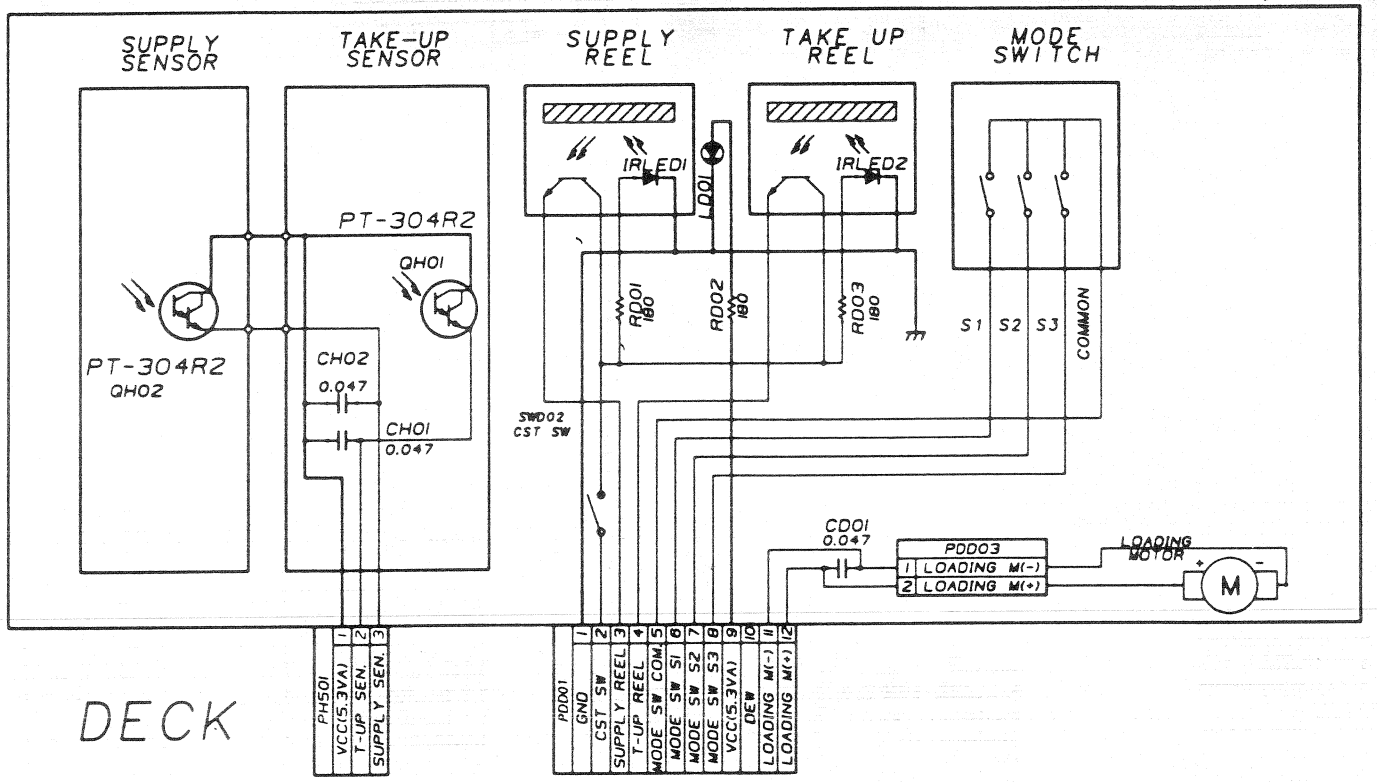

SECAM/OSD BOARD
P3908 P9302
REC S. "H"
1MHz BELL REC
G N D
PB IN REC BELL TP
REC COLOR
SECAM V. IN
PB OUT BELL ADJ
PB COLOR OUT
G N D
PB COLOR IN
PB IN BELL ADJ
GATE TIME TP
GATE TIME ADJ
C SYNC
PB 5V
P3907 P0301
TITLE V. IN
G N D
TITLE V.OUT
REG 12V
OSD V.IN
REG 5V
OSD V. OUT
G N D
OSD CS
OSD CLK
OSD DATA
G N D
SYNC "H"
5.3V
1MHz BELL ADJ
PREMIERE BOARD
P4509 PS409
G N D
REG 12VA
REG 6VA
OSD V. OUT
TUNER "H"
TITLE V. IN
G N D
AV V. IN
VV "H"
PRE. DET. "H"
G N D
G N D
P4508 PS408
AUDIO OUT R
AUDIO OUT L
G N D
SW AUD. OUT R
SW AUD. OUT L
G N D
SC AUDIO IN R
SC AUDIO IN L
G N D
EURO1 A. R
EURO1 A. L
G N D
P4507 PS407
G N D
SCART "H"
SCART CLK
SCART DATA
TUNER "H"
AV "H"
EXT "H"
PRE.CTL "H"
BS "H"
VCR "H"
VPS V. IN
BS VIDEO
TU. VIDEO
TU. A. L
TU. A. R
B/S BOARD
PB702
1 G N D
2 BS VIDEO
3 BS "H"
4 REG 6VA
5 REG 32VA
6 REG 12V
7 REG 12/19VA
8 REG 12VA
9 BS SIF
10 G N D
PB701
1 BS AFC "H"
2 BS AFC "L"
3 G N D
4 DATA2(BS)
5 CLK2(BS)
6 BS ENABLE
7 G N D
8 TIMER "H"
9 G N D
10 G N D
11 G N D
12 EXP3 ENA.
P7B02
G N D 1
BS VIDEO 2
BS "H" 3
REG 6VA 4
REG 32VA 5
REG 12V 6
REG 12/19VA 7
REG 12VA 8
BS SIF 9
G N D 10
P7B01
BS AFC "H" 1
BS AFC "L" 2
G N D 3
DATA2(BS) 4
CLK2(BS) 5
BS ENABLE 6
G N D 7
TIMER "H" 8
G N D 9
G N D 10
G N D 11
EXP3.ENABLE 12
Y/C BOARD
P3205
G N D 1
REG 32 VA 2
REG 12 VA 3
REG 5.3 VA 4
OSD DATA 5
OSD CLK 6
OSD CS 7
G N D 8
REG 6VA 9
REG 12/19VA 10
AV A. IN(R) 11
AV A. IN(L) 12
TIMER "H" 13
SECAM"H" 14
MESECAM"H" 15
VV/EE 16
AV V IN 17
G N D 18
OSD V. OUT 19
G N D 20
TITLE V. IN 21
TUNER "H" 22
G N D 23
P4310
1 G N D
2 REG 32 VA
3 REG 12VA
4 REG 5.3VA
5 OSD DATA
6 OSD CLK
7 OSD CS
8 G N D
9 REG 6VA
10 REG 12/19VA
11 AV A. IN(R)
12 AV A. IN(L)
13 TIMER "H"
14 SECAM"H"
15 MESECAM"H"
16 VV/EE
17 AV V. IN
18 G N D
19 OSD V. OUT
20 G N D
21 TITLE V. IN
22 TUNER "H"
23 G N D
P7A05 PA701
1 ST ADJ.(OPTION) 1
2 SECAL-L"H" 2
3 TU.AUDIO R 3
4 G N D 4
5 TU.AUDIO L 5
6 G N D 6
7 TU. VIDEO 7
8 G N D 8
9 VPS VIDEO IN 9
10 REG 12VA 10
11 G N D 11
12 I F 12
13 G N D 13
14 RF AGC 14
15 AGC ADJ. 15
PRE-AMP BOARD
P3809
C SYNC
REC.S. "H"
G N D
REC. C
REC. Y
REG 6VA
G N D
PB C
LP "H"
G N D
PB Y
ENV. COMP.
P4816
H/A/SW
V. ENV.
V.SW.25
A.SW.25
G N D
A.REC.FM
A.PB.FM
P5704 PA502
1 AFC IN 1
2 POWER CTL"H" 2
3 G N D 3
4 G N D 4
5 G N D 5
6 G N D 6
7 BS SIF 7
8 G N D 8
9 REG 9VA 9
10 REG 5.3VA 10
MAIN BOARD
I/F BOARD
SMPS BOARD
PP301 P3103
1 G N D 1
2 G N D 2
3 REG 32VA 3
4 REG 13VA 4
5 N C 5
6 REG 12V 6
7 REG 22/19VA 7
PP302 P3102
1 G N D 1
2 REG -31VA 2
3 TIMER "H" 3
4 PWR CTL "H" 4
5 G N D 5
6 REG 6V 6
7 REG 6.3VA 7
8 REG -22VA 8
9 REG -26VA 9
P3204
G N D 1
-31VA 2
PB"H" 3
POWER CTL "H" 4
C SYNC 5
DV SYNC 6
G N D 7
G N D 8
Fsc 9
SP "H" 10
LP "H" 11
SYNC "H" 12
C ROTARY "H" 13
TRICK "H" 14
ENV .COMP 15
REG 13VA 16
REG 6VA 17
SECAM DET. "H" 18
REC.S "H" 19
SHARPNESS 20
G N D 21
G N D 22
V.SW 25 23
P2311
1 G N D
2 -31VA
3 PB"H"
4 POWER CTL "H"
5 CSYNC
6 DV SYNC
7 G N D
8 G N D
9 Fsc
10 SP "H"
11 LP "H"
12 SYNC "H"
13 C.ROTARY "H"
14 TRICK "H"
15 ENV. COMP
16 REG 13VA
17 REG 6VA
18 SECAM DET. "H"
19 REC.S."H"
20 SHARPNESS
21 G N D
22 G N D
23 V.SW 25
DECK JUNCTION BOARD
PD215 P2D15
CFG (+)
REG 5.3VA
CAP. CTL
G N D
N C
DRUM CTL
REG 13VA
G N D
D. FG (+)
D. FG (-)
PG (+)
PD214 P2D14
MODE C
MODE B
MODE A
MODE COMMON
T-UP REEL
SUPPLY REEL
CST SW
G N D
SUP SENSOR
T-UP SENSOR
C.M. GND
F/R
PD213 P2D13
PB AUDIO
G N D
REC AUDIO
G N D
A. ERASE
G N D
CTL (-)
CTL (+)
LOAD (+)
LOAD (-)
FULL ERASE
REG 5.3VA
P5703 PA503
1 1
2 2
3 LED "L" 3
4 LED "R" 4
5 G N D 5
6 REG 12VA 6
7 REG 5.3VA 7
8 CLK 1 8
9 DATA 1 9
10 CLK2(EXP2) 10
11 DATA2(EXP2) 11
12 EXP.2 ENA 12
13 SCART "H" 13
14 14
15 15
P6301 P3601
G N D
-26VA
-22VA
G N D
AV VIDEO IN
AV AUDIO IN(L)
G N D
AV AUDIO IN(R)
G N D
REG 6V
REG 6.3VA
G N D
G N D
G N D
G N D
P6501 P5601
G N D
9G
8G
7G
6G
5G
4G
3G
2G
1G
P1
P2
P3
P4
P5
P6
P7
P8
P9
P10
P11
P6502 P5602
P12
P13
P14
P15
G N D
H/P AUDIO L
H/P VR
H/P AUDIO R
SYNCRO EDIT
REMOCON IN
REG 5.3VA
5.3VA(Vref)
KEY RETURN
ACSS IN
REC VR-L
REC VR-R
A.OUT L/M(L)
A.OUT L/M(R)
G N D
KEY BOARD
P6606
H/P R 1
H/P VR 2
H/P L 3
REC VR R 4
REC VR L 5
KEY RETURN 6
C.PAUSE 7
REG -26VA 8
REG -22VA 9
G N D 10
REG 6VA 11
KEY RETURN 12
G N D 13
P6605
1 H/P R
2 H/P VR
3 H/P L
4 REC VR R
5 REC VR L
6 KEY RETURN
7 C.PAUSE
8 REG -26VA
9 REG -22VA
10 G N D
11 REG 6VA
12 KEY RETURN
13 G N D
TIMER BOARD
94. 9. 10. 526A

5
4
3
2
1

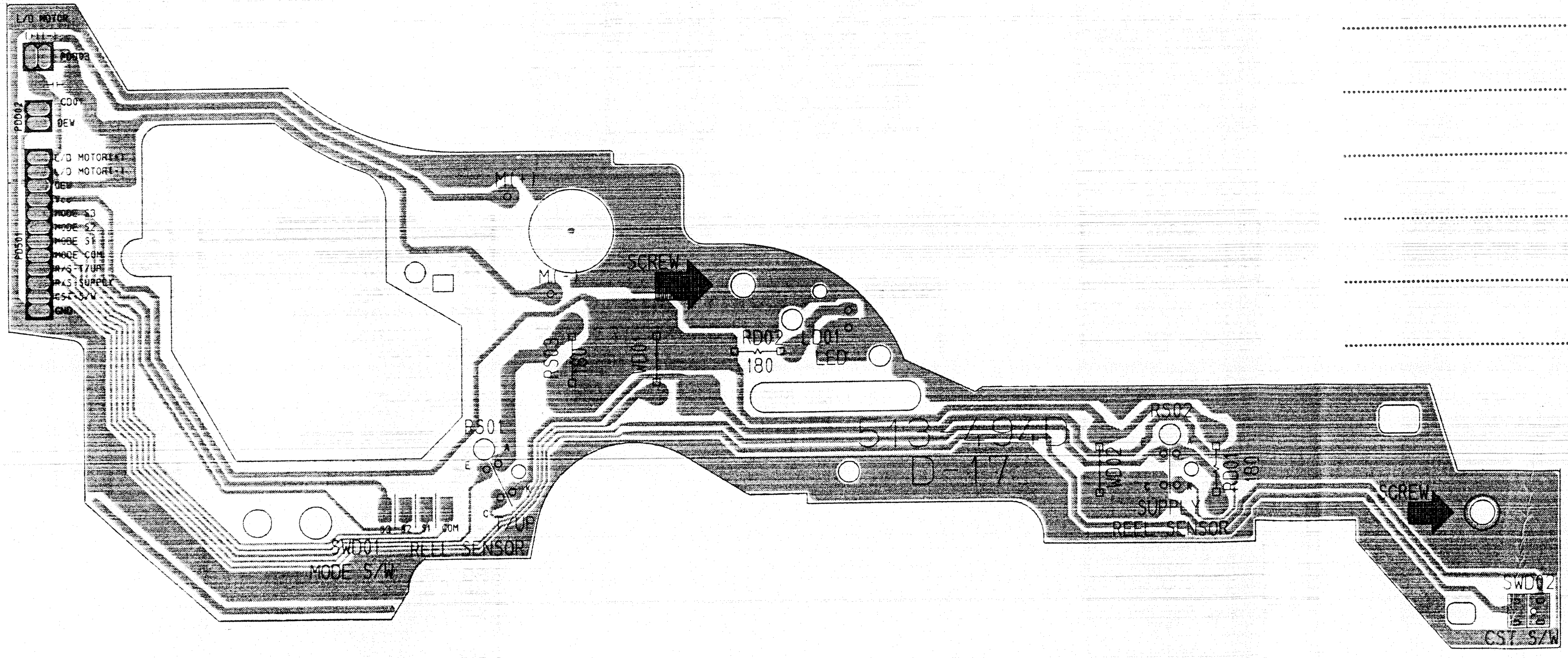
A B C D E F G H

DECK JUNCTION

1. Deck Junction Circuit Diagram


SUPPLY SENSOR
TAKE-UP SENSOR
SUPPLY REEL
TAKE UP REEL
MODE SWITCH
PT-304R2
QH01
PT-304R2
QH02
CH02
0.047
CH01
0.047
IRLED1
IRLED2
LD01
RD01
180
RD02
180
RD03
180
S1
S2
S3
COMMON
SWD02
CST SW
CD01
0.047
PD003
1 LOADING M(-)
2 LOADING M(+)
LOADING MOTOR
M
DECK
PH501
1 VCC(5.3VA)
2 T-UP SEN.
3 SUPPLY SEN.
PD001
1 GND
2 CST SW
3 SUPPLY REEL
4 T-UP REEL
5 MODE SW COM.
6 MODE SW S1
7 MODE SW S2
8 MODE SW S3
9 VCC(5.3VA)
10 DEW
11 LOADING M(-)
12 LOADING M(+)

2. Deck Junction P.C.Board

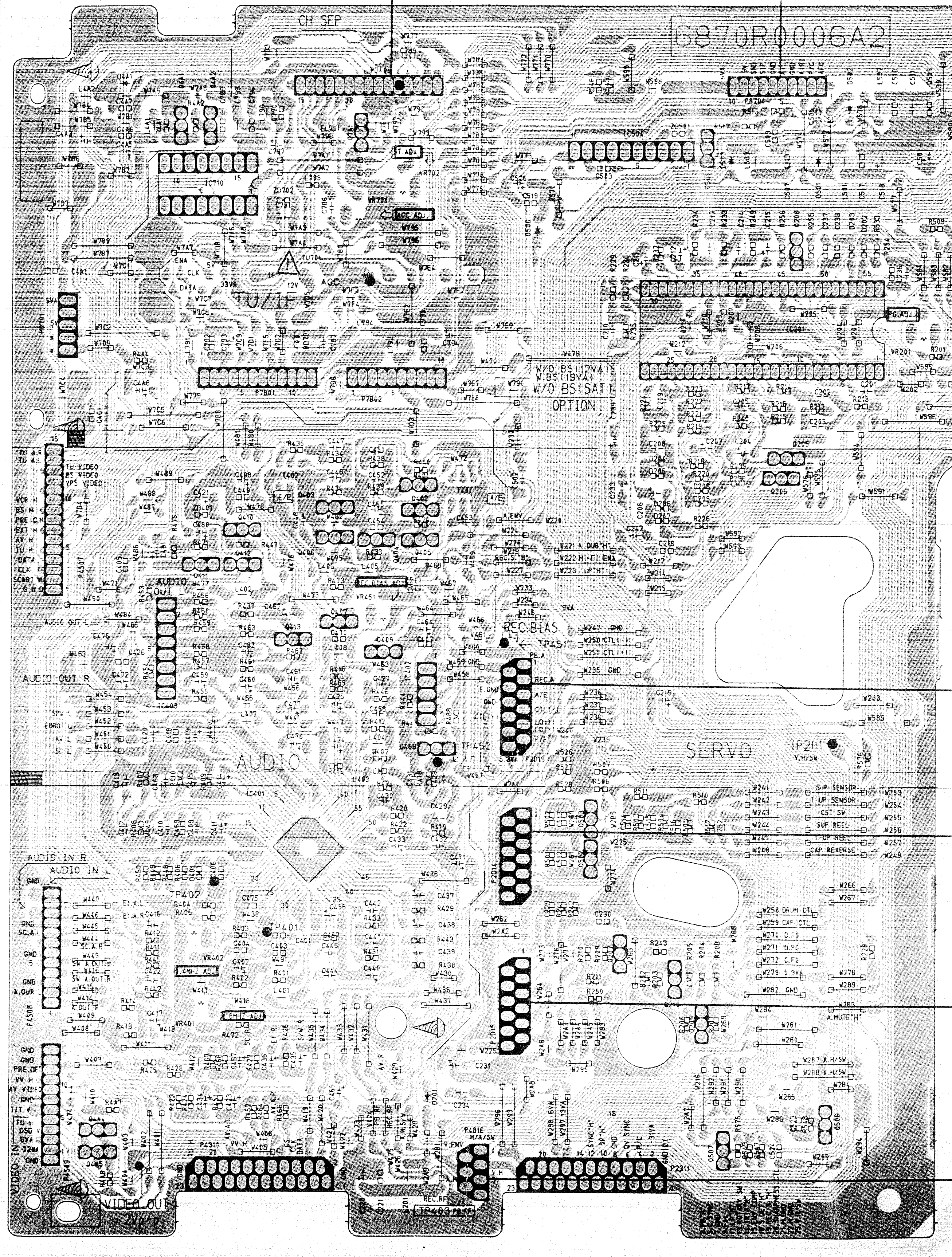

L/D MOTOR
PD003
CD01
DEW
L/D MOTOR(+)
L/D MOTOR(-)
DEW
MODE S3
MODE S2
MODE S1
MODE COM
T/UP
SUPPLY
GND
SCREW
RD02
180
LD01
LED
SWD01
MODE S/W
T/UP REEL SENSOR
SUPPLY REEL SENSOR
SCREW
SWD02
CST S/W

(Solder Side)

MEMO

PRINTED CIRCUIT BOARD DIAGRAMS

1. Main 1 P.C.Board



(Solder Side)

TO IF

P7A05~PA701	
1	OPTION (ST ADJ)
2	SECAM-L "H"
3	TU A-R OUT
4	G.N.D (A)
5	TU A-L OUT
6	G.N.D (A)
7	TUNER V-OUT
8	G.N.D (A)
9	VPS VIDEO IN
10	12V (G)
11	G.N.D (A)
12	IF
13	G.N.D (A)
14	RF AGC
15	AGC ADJ

P5704~PA502	
1	AFC IN
2	POWER CTL "H"
3	GND
4	GND
5	GND
6	GND
7	BS SIF
8	GND
9	REG 9VA
10	REG 5.3VA

P5703~PA503	
1	
2	
3	LED "L"
4	LED "R"
5	GND
6	REG 12VA
7	REG 5.3VA
8	CLK 1
9	DATA 1
10	CLK2 (EXP2)
11	DATA2 (EXP2)
12	EXP. 2 ENA
13	SCART "H"
14	
15	

TO DECK

P2D13	
1	PB AUDIO
2	GND
3	REC AUDIO
4	F GND D
5	A/E
6	GND
7	CTL (-)
8	CTL (+)
9	LOAD (+)
10	LOAD (-)
11	F/E
12	5.3VA

P2D14	
1	MODE C
2	MODE B
3	MODE A
4	MODE COMMON
5	T-UP REEL
6	SUPPLY REEL
7	CST SW
8	GND
9	SUP SENSOR
10	T-UP SENSOR
11	C.M.GND
12	F/R

P2D15	
1	CFG (+)
2	REG 5.3VA
3	13VA
4	CAP CTL
5	GND
6	NC
7	DRUM CTL
8	13VA
9	D.M.GND
10	D.FG (+)
11	D.FG (-)
12	PG (+)

TO PRE-AMP

P4816~P8403	
1	H/A/SW
2	V.ENV
3	V SW 25
4	A SW 25
5	GND
6	A REC FM
7	A PB FM

TO TIMER

P5602~P6502	
1	P12
2	P13
3	P14
4	P15
5	GND
6	H/P A.OUT L
7	H/P VR
8	H/P A.OUT R
9	C.PAUSE
10	REMOCON IN
11	5.3VA
12	5.3VA (Vref)
13	KEY RETURN
14	DIGITAL LINK
15	REC VR (L)
16	REC VR (R)
17	A.OUT L/M (L)
18	A.OUT L/M (R)
19	TV CONTROL

P5601~P6501	
1	GND
2	9G
3	8G
4	7G
5	6G
6	5G
7	4G
8	3G
9	2G
10	1G
11	P1
12	P2
13	P3
14	P4
15	P5
16	P6
17	P7
18	P8
19	P9
20	P10
21	P11

LOCA NO.	Posi-tion
IC201	4C
IC402	3B
IC404	2A
IC501	4D
IC503	4D
IC710	4A
Q201	4D
Q202	4D
Q203	4D
Q204	4D
Q205	4C
Q206	3C
Q207	2C
Q208	4C
Q209	2C
Q210	2C
Q402	3B
Q403	3B
Q404	3B
Q405	3B
Q406	3B
Q407	3B
Q408	2B
Q409	3B
Q410	3A
Q411	3A
Q412	3A
Q413	3B
Q4A1	5A
Q4A2	5A
Q4A4	1A
Q4A5	1A
Q501	5C
Q502	2C
Q503	2C
Q504	5E
Q505	5E
Q506	1C
Q507	1C
Q7A1	5B

NOTE)

- ⚠ : **SAFETY PARTS**
- ● : **MEASUREMENT POINT**
- ☐ : **ADJUSTMENT POINT**
- Emitter / Collector / Base : **TRANSISTOR**

ABBREVIATIONS

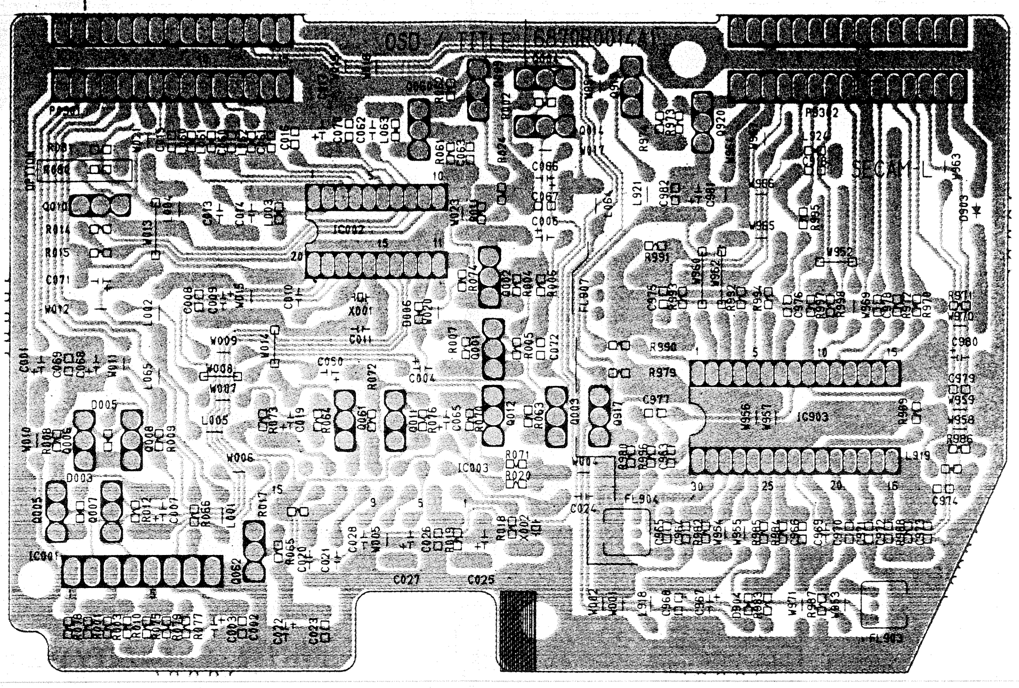
ADJ : ADJUSTMENT
AFC : AUTOMATIC FREQUENCY CONTROL
AGC : AUTOMATIC GAIN CONTROL
AUD : AUDIO
CAR : CARRIER
COL : COLOR
DEV : DEVIATION
EE : Electric to Electric
ENV : ENVELOP
FRE : FREQUENCY
LEV : LEVEL
LUM : LUMINANCE
OSC : OSCILLATION
PB : PLAYBACK
PG : PULSE GENERATOR
REC : RECORDING
SIF : SOUND INTERMEDIATE FREQUENCY
VOL : VOLTAGE

5
4
3
2
1

A B C D E F G H

2. Y/C P.C.Board

3. Function OSD P.C.Board


OSD / TITLE 6870R0014A
SECAM-L
IC002
IC003
IC903

(Solder Side)

TO F.OSD

	P3907~P0301
1	TITLE V.IN
2	GND
3	TITLE V.OUT
4	REG 12VA
5	OSD V.IN
6	REG 5V
7	OSD V.OUT
8	GND
9	OSD CS
10	OSD CLK
11	OSD DATA
12	GND
13	SYNC "H"
14	5.3V
15	1.1MHz BELL ADJ

NOTE) ● : **MEASUREMENT POINT**
☐ : **ADJUSTMENT POINT**
Emitter : **TRANSISTOR**
Collector
Base

TO PRE-AMP

	P3809~P8302
1	"C" SYNC
2	REC S. "H"
3	GND
4	REC C
5	REC "Y"
6	REG 6V
7	GND
8	PB C
9	LP "H"
10	GND
11	PB "Y"
12	ENV COMP

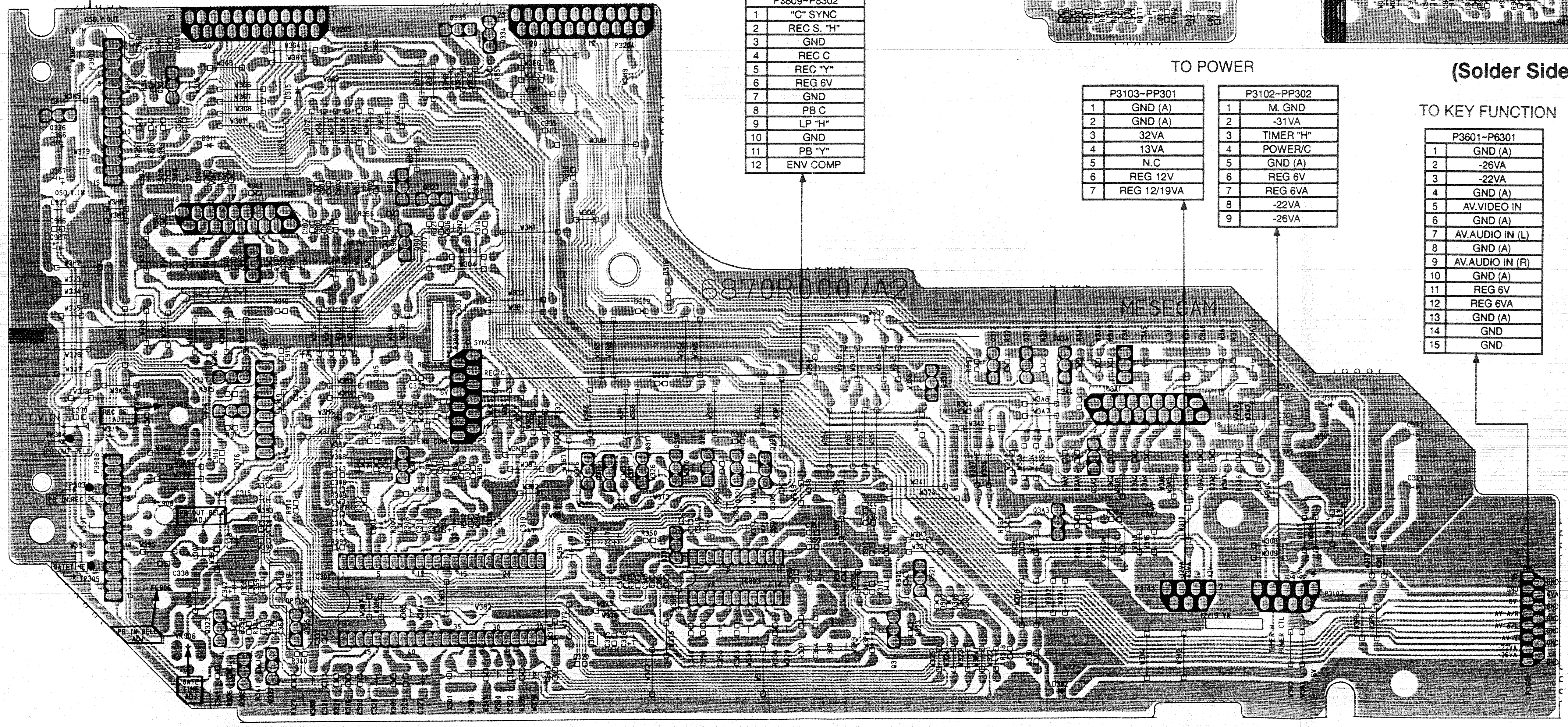
TO POWER

	P3103~PP301
1	GND (A)
2	GND (A)
3	32VA
4	13VA
5	N.C
6	REG 12V
7	REG 12/19VA

	P3102~PP302
1	M. GND
2	-31VA
3	TIMER "H"
4	POWER/C
5	GND (A)
6	REG 6V
7	REG 6VA
8	-22VA
9	-26VA

TO KEY FUNCTION

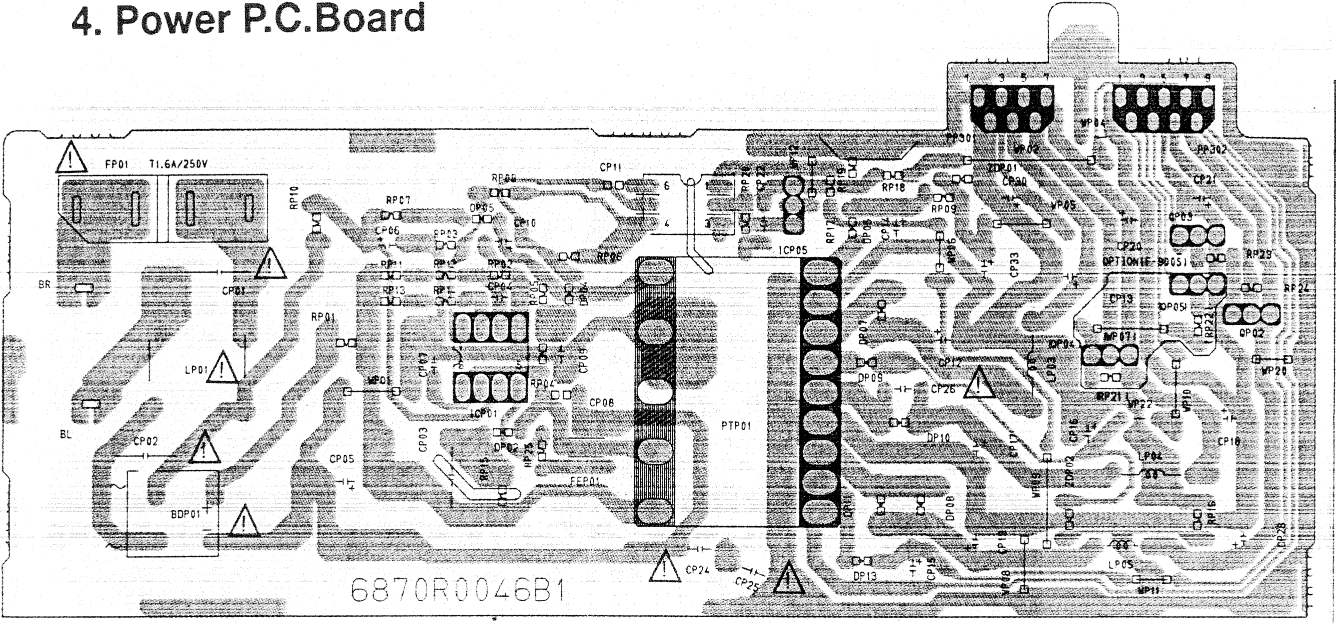
	P3601~P6301
1	GND (A)
2	-26VA
3	-22VA
4	GND (A)
5	AV.VIDEO IN
6	GND (A)
7	AV.AUDIO IN (L)
8	GND (A)
9	AV.AUDIO IN (R)
10	GND (A)
11	REG 6V
12	REG 6VA
13	GND (A)
14	GND
15	GND


T.V.IN
OSD.V.OUT
OSD.V.IN
P3205
P3204
IC901
IC301
IC303
REC C
SYNC
T.V.IN
REC BELL ADJ
PB OUT BELL
PB IN REC BELL
PB OUT BELL
GATE TIME
PB IN BELL
GATE ADJ
SECAM
6870R0007A2
MESECAM
P3103
P3102
5
4
3
2
1
A
B
C
D
E
F
G

(Solder Side)

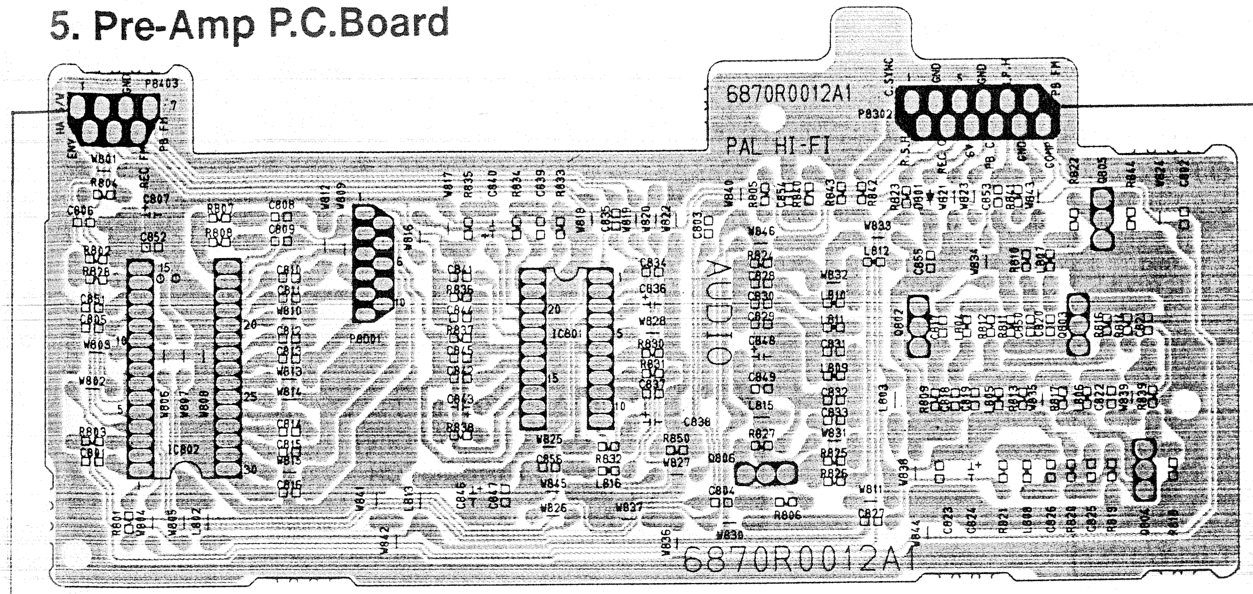
LOCA NO.	Posi-tion
IC3A1	2E
IC301	1B
IC303	1D
IC901	3B
IC902	2B
Q305	2B
Q309	1B
Q312	2E
Q313	2E
Q314	1D
Q315	2C
Q316	2C
Q317	2C
Q318	2C
Q319	2C
Q320	2D
Q321	2D
Q322	1B
Q323	1A
Q324	3A
Q325	1B
Q326	3A
Q327	3B
Q330	2D
Q331	1C
Q334	3C
Q335	4B
Q901	3B
Q902	3B
Q906	2A
Q907	2A
Q921	1D
Q3A1	2E
Q3A3	2E
Q3A2	2E
IC001	5E
IC002	5F
IC903	4G
Q062	4E
Q001	4F
Q002	4F
Q003	4F
Q004	5F
Q005	4E
Q006	4E
Q007	4E
Q008	4E
Q009	5F
Q010	5E
Q011	4F
Q012	4F
Q014	5F
Q050	5F
Q051	4F
Q917	4F
Q919	5F
Q920	5G

4. Power P.C.Board


6870R0046B1

(Solder Side)

5. Pre-Amp P.C.Board


6870R0012A1
PAL HI-FI
P8302
P8403
AUDIO

TO Y/C

P8302~P3809	
1	C.SYNC
2	REC S. "H"
3	GND
4	REC C
5	REC Y
6	REG 6V
7	GND
8	PB C
9	LP "H"
10	GND (A)
11	PB Y
12	ENV COMP

(Solder Side)

TO MAIN

P8403~P4816	
1	H/A/SW
2	VIDEO ENV
3	H/SW (VIDEO)
4	H/SW (AUDIO)
5	GND
6	(A) REC FM
7	(A) PB FM

6. Timer P.C.Board

TO MAIN

P6502~P5602	
1	P12
2	P13
3	P14
4	P15
5	GND (A)
6	H/P A.OUT L
7	H/P VR
8	H/P AUDIO R
9	SYNCRO EDIT
10	REMOCON
11	5.3VA
12	5.3VA (Vref)
13	KEY RETURN
14	DIGITAL LINK
15	REC VR (L)
16	REC VR (R)
17	A.OUT L/M (L)
18	A.OUT L/M (R)
19	TV CONTROL

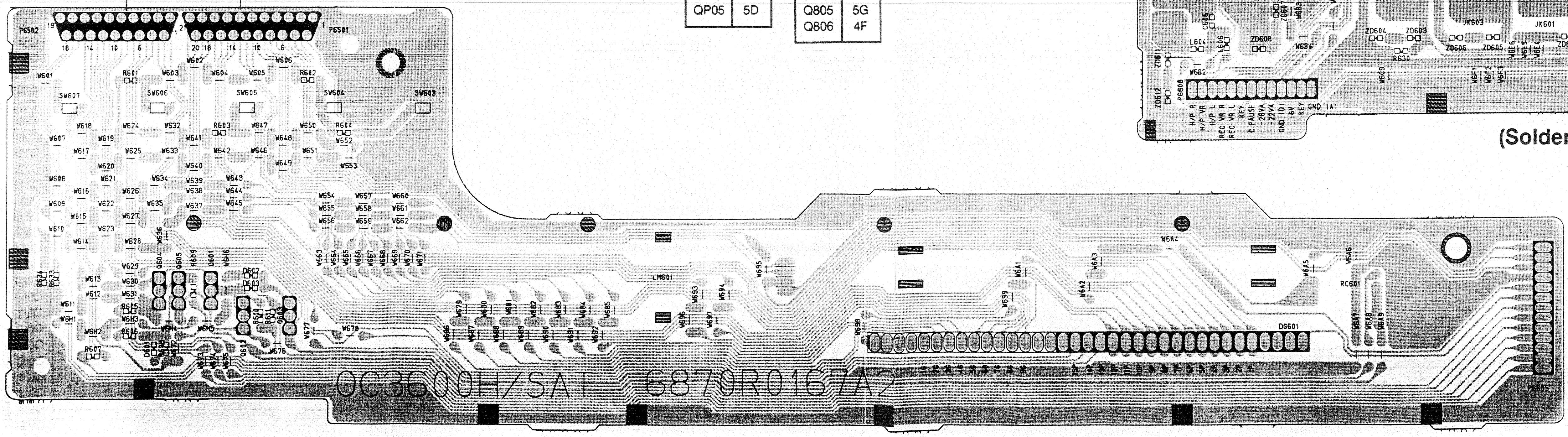
P6501~P5601	
1	GND (D)
2	9G
3	8G
4	7G
5	6G
6	5G
7	4G
8	3G
9	2G
10	1G
11	P1
12	P2
13	P3
14	P4
15	P5
16	P6
17	P7
18	P8
19	P9
20	P10
21	P11

NOTE) ⚠ : **SAFETY PARTS**

Emitter : TRANSISTOR
Collector
Base

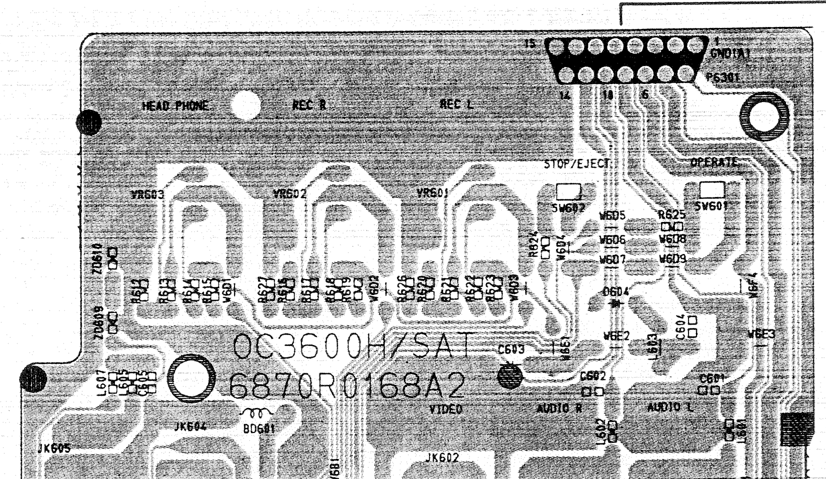
LOCA NO.	Posi-tion
IC901	4B
IC905	5C
QP02	5D
QP03	5D
QP04	4C
QP05	5D

LOCA NO.	Posi-tion
IC801	4F
IC802	4E
Q802	5F
Q803	5G
Q804	4G
Q805	5G
Q806	4F


P6502
P6501
0C3600H/SAT 6870R0167A2
DG601

(Solder Side)

7. Key Function P.C.Board


P6301
HEAD PHONE
REC R
REC L
STOP/EJECT
OPERATE
0C3600H/SAT
6870R0168A2
VIDEO
AUDIO R
AUDIO L

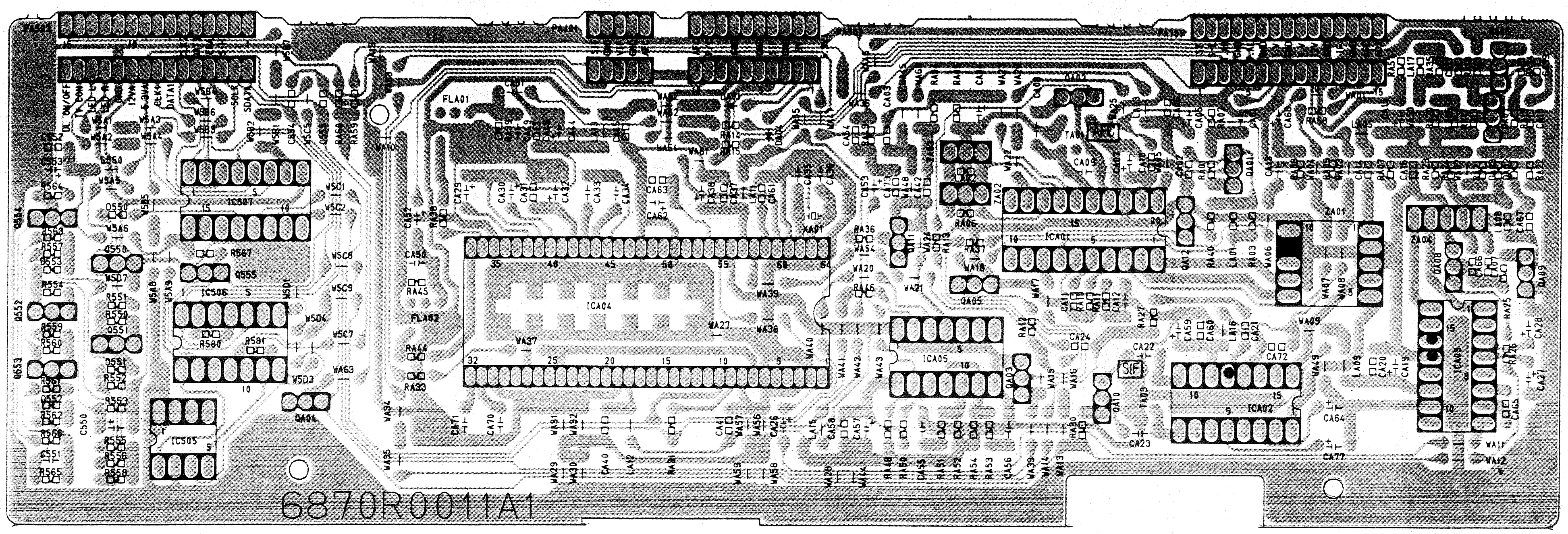
TO Y/C

P6301~P3601	
1	GND (A)
2	-26VA
3	-22VA
4	GND (A)
5	AV.V.IN
6	GND (A)
7	AV.A.IN (L)
8	GND (A)
9	AV.A.IN (R)
10	GND (A)
11	6V
12	6VA
13	GND (A)
14	GND (A)
15	GND (A)

(Solder Side)

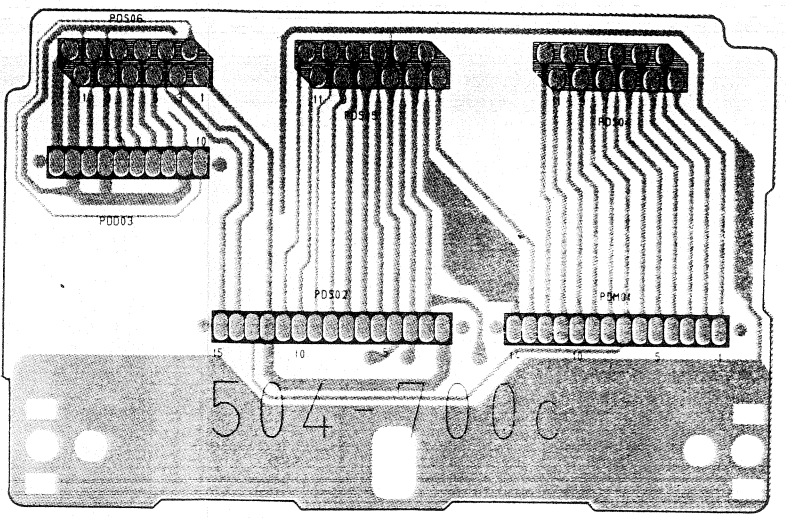
5
4
3
2
1
A
B
C
D
E
F
G
H

8. IF P.C.Board



(Solder Side)

9. Junction P.C.Board

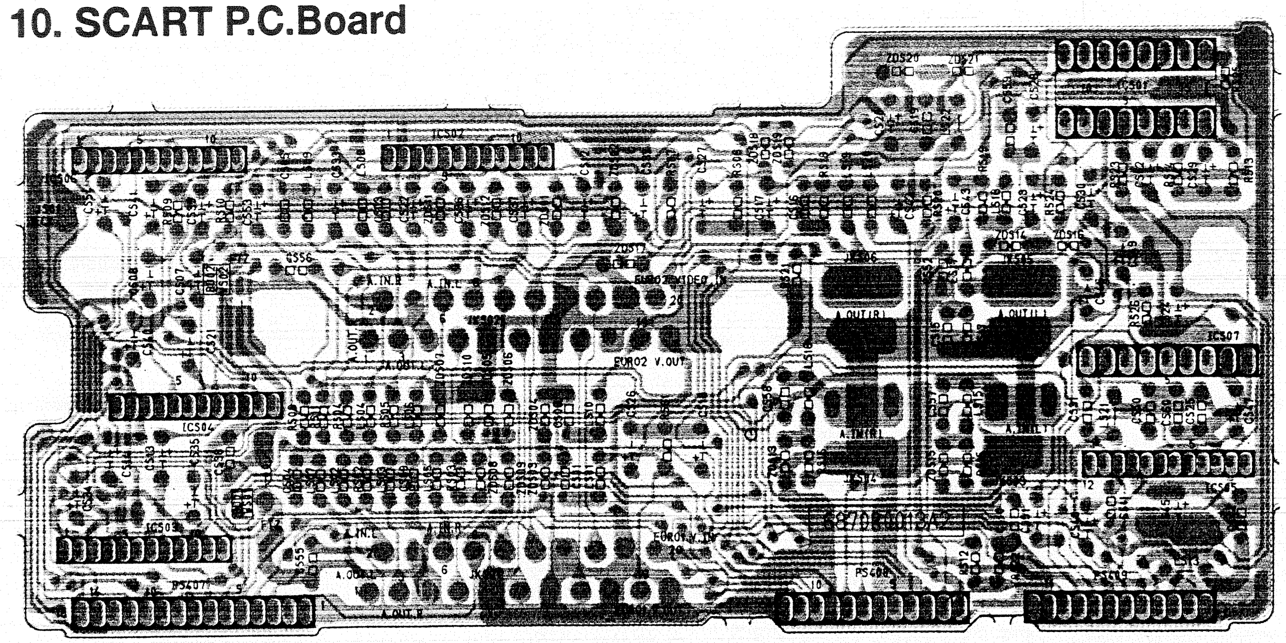


(Solder Side)

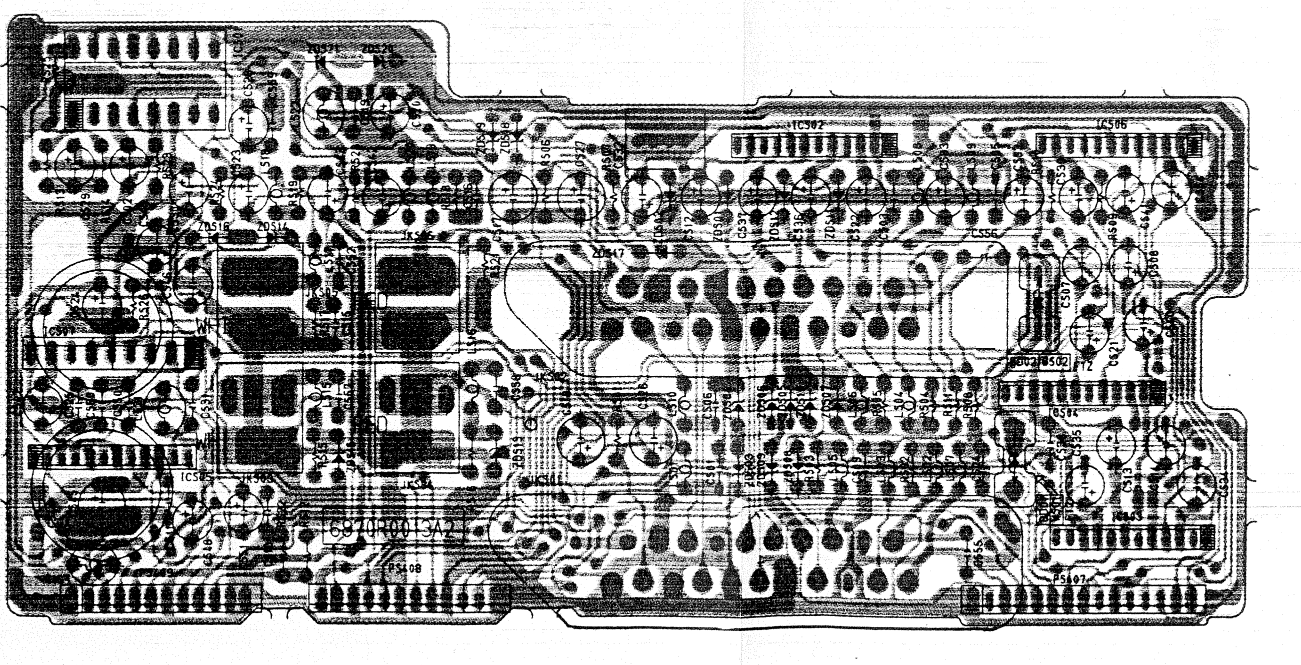
LOCA NO.	Posi-tion
IC505	4A
IC506	4A
IC507	4A
ICA01	4D
ICA02	4D
ICA03	4D
ICA04	4B
ICA05	4C
Q550	4A
Q551	4A
Q552	4A
Q553	4A
Q554	4A
Q555	4A
QA01	5D
QA02	5D
QA03	4D
QA04	4B
QA05	4D
QA06	5E
QA07	5E
QA08	4E
QA09	4E
QA10	4D
QA11	4C
QA12	4D

NOTE)
● : MEASUREMENT POINT
☐ : ADJUSTMENT POINT
Emitter : TRANSISTOR
Collector
Base

10. SCART P.C.Board



(Solder Side)



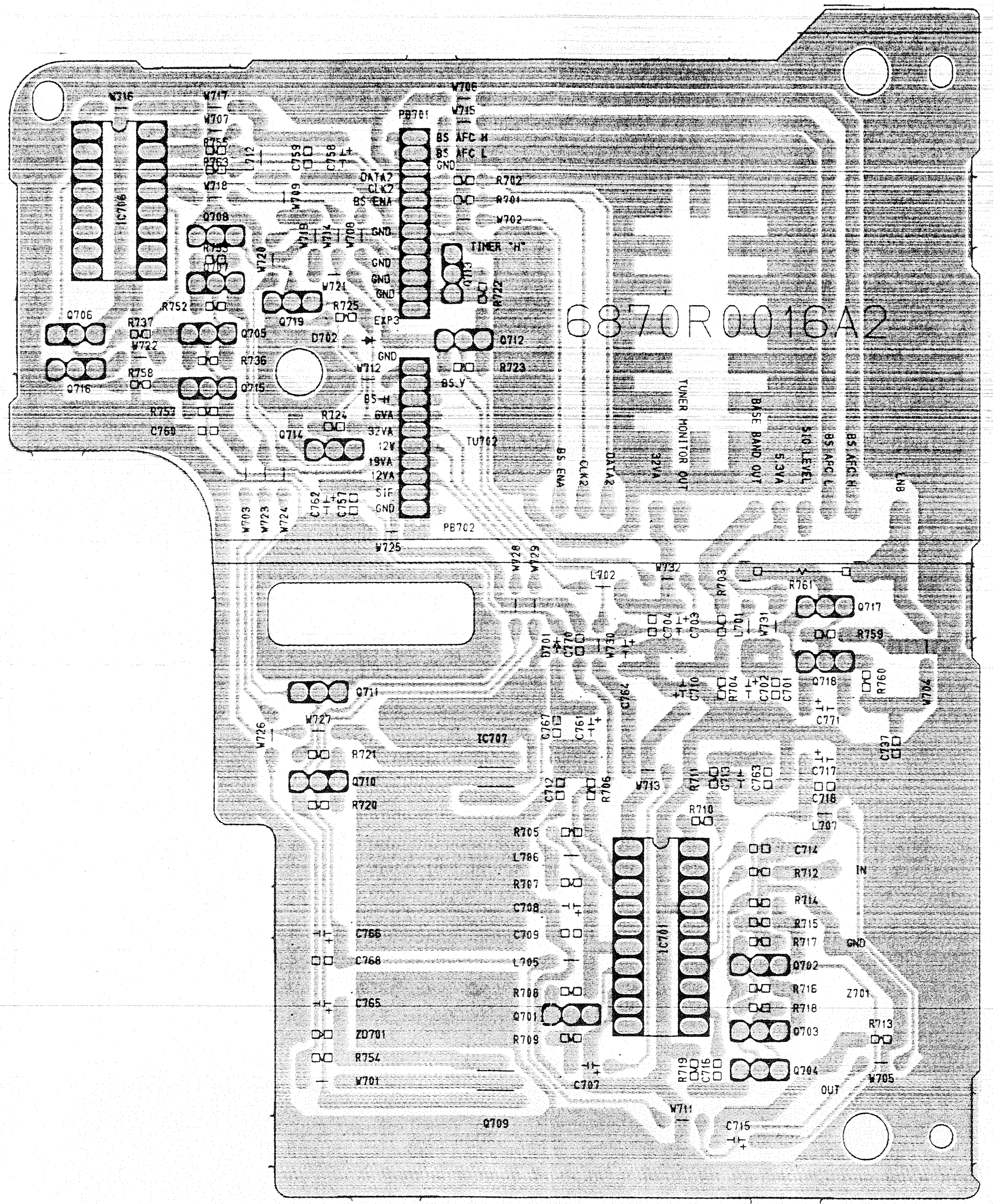
(Component Side)

LOCA NO.	Posi-tion
IC501	2D
IC502	2B
IC503	1A
IC504	1A
IC505	1D
IC506	2A
IC507	2D

5
4
3
2
1

A B C D E F G

11. BS P.C.Board



(Solder Side)

LOCA NO.	Posi-tion
IC701	3C
IC706	5A
Q701	2B
Q702	3C
Q703	2C
Q704	2C
Q705	4B
Q706	4A
Q708	4A
Q710	3B
Q711	3B
Q712	4B
Q713	4B
Q714	4B
Q715	4B
Q716	4A
Q717	4C
Q718	3C
Q719	4B

MEMO